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Problems of Economics

Selected Articles from

Soviet Economics Journals in English Translation

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Concerning the Enterprise Fund

The Soviet Union's Program of Reducing the Working Day and the Working Week

The Use of Social Funds in Public Consumption

Growth of the US National Debt

A Modern Bourgeois Textbook of Political Economy

The Insolvency of Bourgeois Foreign Trade Theory

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Problems of Economics

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Planovoe Khoziaistvo - Planned Economy - No. 11, 1959

A. Emelianov and A. Tolkachov:

Methodological Problems in Determining the Economic Effectiveness of Production Mechanization and Automation

The June Plenum of the Central Committee of the CPSU, which mapped out a comprehensive program for attaining the targets of the Seven-Year Plan and for accelerating technical progress in industry and building construction, laid special stress on the task of enhancing the effectiveness of new equipment and improving the economic foundations for the designing and introduction of this equipment.

The Plenum of the Central Committee of the CPSU pointed out that in elaborating and introducing new technological processes, machines, mechanisms, and building designs it is essential to proceed, first and foremost, from the following factors: they should meet the requirements for the most rational and economically efficient utilization of social labor, material and monetary resources; ensure increased output, higher quality and lower production costs, increased labor productivity; lighten and improve working conditions; conform to safety engineering rules; accelerate and cheapen building construction; and reduce the periods of recoupment of capital investments as compared with the best achievements in Soviet and foreign science and engineering.

The methodology of determining the economic effect to be derived from the introduction of new technology must comprise scientifically grounded instructions giving practical workers the possibility of adequately solving the principal problems of economic effectiveness which they are faced with in their work. These problems include:

(1) the choice of the most effective line (objects) of mechanization and automation of production;

(2) the establishment of the economically most effective variants of mechanization and automation;

(3) the calculation of the actual benefit which the national economy will derive from mechanization and automation.

The methodology must include concrete examples of calculations and, if possible, a system of normative standards of expenses and effectiveness.

The magnitude of economic effectiveness should actually become an objective criterion determining whether the projected new machine, apparatus, etc. should be introduced into production; it must become the most important condition for establishing the main direction and sequence of mechanization and automation in industrial branches and in types of production processes.

The mechanization and automation of production yield a tremendous economic effect. This is borne out not only by numerous individual facts, but also by composite data on a great number of measures carried out in this field.

The Central Statistical Administration of the USSR investigated 121 enterprises in the ferrous metallurgy, machine building, chemical, light and food industries in 1958. Data were obtained on the economic effect derived from the introduction of 1,132 measures, of which 863 involved mechanization and 269 pertained to the automation of production processes. When summarized, the expenditures and economic effectiveness are characterized by the following data:

***

Branches of Production	Number of enterprises investigated	Number of measures for which expenditures and economies were calculated	Expenditures on measures carried out (millions of rubles)	Economies per year (millions of rubles)	Period of recoupment of expenditures (years)	Number of workers released
Ferrous metallurgy	17	227	18.5	19.6	0.9	670
Chemical industry	13	87	7.9	6.6	1.2	195
Machine building	47	568	88.5	68.6	1.3	1028
Light industry	26	160	9.8	8.8	1.1	513
Food industry	18	90	7.1	10.6	0.7	496
Sum total	121	1132	131.8	114.2	1.2	2902

As may be seen from the table, the measures carried out have been quite effective. The total economies per year were 114.2 million rubles. The expenses for mechanization and automation were recouped by means of economies obtained from lowering production costs within 1.2 years on the average, and in some cases at a still faster rate. The measures carried out made it possible to release 2,902 workers for other jobs.

The experience gained in operating the most adequate automatic lines in the USSR's industry, as well as the practice of process automation in the leading foreign countries, points to the immense opportunities for increasing total output within a very short period of time, for the rapid growth of labor productivity, and for a considerable decline in capital investments and current production costs per unit of output. Mechanization and automation are a

mighty force for raising the production of social labor and thus contribute to the increase of the national income and to a more complete satisfaction of the material and cultural needs of society. That is why the rise in the productivity of social labor serves as the chief criterion in evaluating the economic effectiveness of mechanization and automation.

Mechanization and automation in the USSR are not only of economic, but also of immense social importance. In a socialist society, all-round mechanization and automation of production processes meet the vital interests of the working people. They lighten the labor of millions of people, change its very character, enhance its productivity, and create conditions for cutting the length of the working day and for eliminating the fundamental differences between mental and physical labor.

The 21st Congress of the CPSU has set the task of eliminating heavy manual labor in industry, building construction, transport and agriculture on the basis of the all-round mechanization of production processes. This includes measures to eliminate harmful and dangerous operations, as well as operations that do not satisfy the requirements of industrial sanitation, safety engineering, etc. In the solution of these problems, measures should be taken to select the economically most efficient types of machines, instruments, automatic devices, etc.

In a capitalist economy the economic limits to the application of machines are set by the savings possible on the remunerated portion of the workers' labor. These limits are considerably wider in a socialist economy, being determined by the savings of social labor. The economic limits to mechanization and automation under socialism are immeasurably wider than they are under capitalism. Marx pointed out that in a communist society machines would find an "altogether different arena" — a much more extensive field of application than in bourgeois society.

Proceeding from these principles of Marxist-Leninist economic theory, in determining the economic effect of mechanization and automation the entire saving of social labor derived from the use of mechanical and automatic devices should be taken into consideration to the fullest possible extent, and all the favorable results of mechanization and automation in the national economy should be brought out.

***

In planning mechanization and automation on a national economic level, the establishment of economic effectiveness should help to determine the sequence of introducing mechanization and automation in the various branches of the national economy and in concentrating resources and efforts along the most important lines.

For this purpose the planning bodies must analyze and calculate economic effectiveness:

in selecting the most important measures for mechanizing the most labor-consuming processes in the branches of the national economy;

in dealing with the most important problems of automation and of the transition from partial automation to the creation of fully automated production processes, shops, and factories;

in raising the all-round mechanization level of some lagging production branches, as stated in the decision of the June Plenum of the Central Committee of the CPSU (for instance, the mechanization of auxiliary and handling operations, of a number of construction, agricultural, and other processes);

in substantiating plans for the introduction of new equipment, for mechanization and automation measures, as well as in coordinating these plans with the general assignments of the national economic plan for output, labor productivity, production costs and quality, number of workers and the wage bill;

in substantiating measures for the substitution of old machinery and modernization of obsolete equipment.

Economic effectiveness calculations at the level of national economic planning should be accompanied by an analysis of the results obtained from mechanization and automation in adjoining production branches, so as to determine the opportunities for the fullest possible savings of social labor in the national economy.

The determination of capital investments calls not only for taking stock of the direct investments in the given measure, but also the accompanying investments involved in the development of the production facilities which will be permanently linked with the basic enterprise (for example, enlargement of power stations, repair facilities, spare parts manufacture, etc.). Further, it is necessary to take into consideration the relevant investments in the development of instrument making, electronics, hydraulics etc., if these expenses are due to mechanization and automation and amount to large sums.

In analyzing the savings of social labor due to mechanization and automation, account should be taken not only of the direct changes in wage payments to the personnel directly concerned, but also of the possible changes in the balance of labor resources of the given districts and in the expenses involved in personnel training, as well as of the changes in the volume of the net product obtained, etc. In analyzing material expenditures, the influence exerted by the redistribution of the surplus product through the mechanism of prices for some products should be excluded (especially as regards fuel, electric power, transport, etc.). Average coefficients may be employed for approximate estimates of total labor inputs.

Each measure of mechanization and automation should be examined and evaluated from the point of view of its economic effectiveness. Other conditions being equal, mechanization and automation measures should be carried out, first and foremost, where they are likely to ensure the greatest possible national economic effect; this depends to a great extent on the scope on which the measures are being introduced at the enterprise, in the industrial branch, and in the national economy as a whole.

In determining the economic effectiveness of capital investments in mechanization and automation for the purpose of obtaining comprehensive information on the effect of investments at the level of national economic planning it is advisable to adopt the following system of general indices of economic effectiveness:

(a) production costs of goods produced with the aid of mechanization and automation facilities;

(b) capital investments in mechanization and automation;

(c) rise in labor productivity (output of workers) or reduction of labor inputs in production;

(d) "yield" of output per ruble of capital investment in mechanization and automation;

(e) coefficient of effectiveness of investments (total and additional) in mechanization and automation and the corresponding period of "recoupment" of capital expenditures.

Economic effectiveness indices in annual plans should be calculated from the bottom upward (i.e. from enterprises to the USSR State Planning Committee) on the basis of draft calculations, data furnished by enterprises, research institutes of the industrial branches, etc.

In long-term plans the indices of effectiveness of

mechanization and automation should be determined on the basis of summary calculations.

Summarized data on the economic effectiveness of mechanization and automation measures for long-term planning should be derived by drawing on the analysis of mass accounting materials on the actual results derived from introducing the relevant measures in previous years, with due consideration for the models prepared by the Central Statistical Administration of the USSR, the new-equipment plans for industrial branches, draft materials, and data submitted by research and designing organizations.

As an example we may point to the necessity of working out the following summary data:

on capital investments in mechanization and automation and on their share in total expenditures on equipment by branches;

on the expenditures required to equip one employee with modern implements of mechanization and automation in the different branches and by types of mechanization (partial and comprehensive mechanization, automatic production lines, etc.);

on the reduction of labor inputs in terms of days per 1 million rubles of expenditures for mechanization and automation;

approximate normative standards for coefficients of effectiveness of capital investments in mechanization and automation, or recoupment periods in years.

The elaboration of summarized data may be carried out by the industrial branches' designing and research institutes and the State Science and Engineering Committee of the USSR.

Substantiated calculations of the effectiveness of mechanization and automation call for a correct determination of full labor costs, and consequently for the correct establishment of the value of the goods produced. It is now already expedient to perform a number of computations in national economic calculations which would take into account the full costs of living labor, i.e., the effect with due consideration for all necessary labor and labor expended for society. Similarly, a number of checking calculations of existing changes, sales prices, etc. should be performed by planning organizations, enterprises, designing agencies, and the like.

We mentioned above that in 1958 the USSR Central Statistical Administration had conducted the first large-scale investigation connected with the determination of the economic effectiveness of mechanization and automation. Similar work, but on a much larger scale and according to a new improved program, is to be carried out in 1960. It is to be expected that these materials will serve as the basis for working out normative standards that may be supplemented by the standards already available at various establishments, designing and research institutions.

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The methodology of determining the economic effectiveness to be derived from the introduction of new equipment (including mechanization and automation facilities) must include concrete directions on how the following issues should be dealt with in planning and designing practice at enterprises, research and planning institutions, special designing offices, and other establishments:

(1) how are the economically most effective objects of mechanization and automation to be selected?

(2) how should the economically most effective variant be chosen from all possible variants of mechanization and automation?

(3) to what extent are the assignments of the enterprise's plan for increasing output, raising labor productivity, reducing production costs, number of workers and the wage fund being met by the introduction of new equipment, mechanization and automation?

The most effective capital investments are those which make it possible "to build up production capacities with lower expenditures of resources, and to increase the output of industrial goods within the shortest possible time and with a sharp rise in labor productivity and a reduction in production costs."* These directives of the 21st Congress of the CPSU apply fully to capital investments in the mechanization and automation of production.

Capital investments per unit of annual output, i.e., specific capital investments, the growth of labor productivity and the reduction of production costs are reflected in the period of recoupment of capital investments. The smaller the capital investments per unit of output, the greater is the growth of labor productivity and the decline in production costs stemming from these capital investments, the shorter is their period of recoupment, and the more goods may be produced with the same capital investments.

The economically most effective variant for the introduction of new machinery, for mechanization and automation in production is that variant which involves the minimum capital expenditures and ensures the lowest production costs as compared to other possible variants, or requires additional capital expenditures which may be recouped by means of reductions in production costs in the shortest possible time (providing that the time required does not exceed that set by normative standards). Thus, the economically most effective variants for the introduction of new equipment are determined either by making use of two indices — capital investment and reduction in production costs, or with the aid of three indices — capital investment, reduction in production costs, and the period of recoupment of additional capital investments.

In order to determine to what extent the enterprise's planned assignments for increased output, growth of labor productivity, and reduction in production costs, number of workers and wage fund are being carried out because of the introduction of new equipment (including mechanization and automation), the following indices of economic effectiveness have to be calculated for each measure involving the introduction of new equipment in all spheres of production:

(1) capital investments;

(2) production costs;

(3) the coefficient of effectiveness or the period of recoupment of total and additional capital investments;

(4) the rise in labor productivity;

(5) the increase in annual output due to capital investments in mechanization and automation;

(6) the yearly output of goods per ruble of capital investment, which is determined by dividing the fifth index by capital investments.

If data on the magnitudes of these indices are available, the capital investments in all measures involving the introduction of new equipment at the enterprise and the total increase in the annual output of goods due to these capital investments may be calculated; and the average reduction in production costs, the average rise in labor productivity, the average period of recoupment of total and additional capital investments and the average yearly output of goods per ruble of capital investment can be determined as well.

* Control Figures for the Development of the National Economy of the USSR for 1959-1965, State Publishing House of Political Literature, 1959, p. 56 (Russian edition).

After these magnitudes are calculated, the influence of mechanization and automation on the fulfillment of the major areas of the enterprise's plan can be established.

The increase in labor productivity in the whole enterprise stemming from the mechanization and automation measures being implemented, when expressed as the percentage (A_n), is equal to the average increase in labor productivity for all the measures carried out (A_c) adjusted for the relationship between the number of industrial workers (or personnel) engaged in those production processes where the measures are being carried out (P), and the number of industrial workers (or personnel) engaged in the entire enterprise (P_n), i.e.,

$$A_n = A_c \frac{P}{P_n} \quad (1)$$

The reduction in production costs in the whole enterprise stemming from the mechanization and automation measures introduced, when expressed as the percentage (S_n), is equal to the average reduction in production costs for all the measures carried out (S_c) multiplied by the quotient obtained by dividing the output produced during the year at those production sections at which the measures are being carried out (W) by the total output produced at the enterprise during the year (W_n), i.e.,

$$S_n = S_c \frac{W}{W_n} \quad (2)$$

The increase in the annual output of the whole enterprise stemming from the mechanization and automation measures introduced, when expressed as the percentage (W_{yn}), is equal to the average increase (in %) in the annual output due to carrying out the measures (W_{cy}) multiplied by the quotient obtained by dividing the increase in annual output due to the mechanization and automation measures (W_m) by the increase in annual output for the enterprise as a whole stemming from all factors (W_b) making for a rise in labor productivity, including improvements in the organization of labor and production, the commissioning of new production capacities, etc., i.e.,

$$W_{yn} = W_{cy} \frac{W_m}{W_b} \quad (3)$$

Production costs do not reflect all the social expenditures involved in production. In the branches of production which have a high share of living labor in total production expenditures the production cost of the goods produced is much lower than their value. In such branches the economic effectiveness of mechanization and automation calculated on the basis of production costs turns out to be much lower than the actual effectiveness. This circumstance may serve as an obstacle to the introduction of sufficiently effective measures for the mechanization and automation of production processes.

It is therefore our opinion that in order to avoid incorrect conclusions when choosing the economically most effective objects of mechanization and automation and the most adequate variants of their realization, it is also essential to determine the period of recoupment of the total and additional capital investments with adjusted production costs. This may serve as check calculation.

Production costs may be corrected by adding to wages (V) the following two values:

(1) that portion of wages (V) which goes for the formation of social funds of collective consumption (the funds for ensuring free education, free medical services for the population, etc.) and

(2) the value created by labor for society (m). In practice, these corrections are to be made by multiplying wages by a common coefficient for all branches of production.

At enterprises, research and planning institutions, special designing offices, and other establishments the check calculations of the recoupment of additional capital investments are performed in the following manner: the wage fund of personnel at the enterprise which is carrying out the mechanization and automation measure is determined as regards the output of the given goods. The wage fund of the personnel of the enterprise is equal to the sum of two magnitudes. The wage fund of the basic categories of workers (V_o) is the first magnitude, and the wage fund of all other categories of enterprise personnel (V_{okp}) (auxiliary hands, engineers and technicians, junior service personnel, etc.) forms the second magnitude.

The magnitude of the wage fund of the basic categories of workers in the manufacture of the given goods is known. The magnitude is determined in the following manner. First, we determine coefficient K, which is equal to the ratio of the whole wage fund for all the personnel of the enterprise for a given time period minus the wage fund of production workers to the wage fund of the basic categories of workers ($\frac{V_{okp}}{V_o} = K$). Then we multiply the basic categories of workers by the coefficient and thus find the wage fund of all other categories of personnel, i.e.,

$$V_{okp} = V_o \quad K.$$

Consequently, the total wages paid to the entire personnel of the enterprise for the manufacture of the given goods is equal to:

$$V_o + V_o \cdot K, \text{ or } V_o \ (1 + K).$$

The wages thus calculated are multiplied by the coefficient established. The value obtained by the multiplication is divided by the total and additional capital investments. This yields check calculations of recoupment periods for total and additional investments.

The most effective of all the possible variants for the introduction of mechanization and automation measures is the one which satisfies one of the following two conditions:

(a) it requires the least capital investments and provides for the lowest production costs;

(b) it calls for larger capital investments, but ensures the shortest recoupment period for the additional capital investments as compared to the basic variant, which does not exceed the normative recoupment period.

The normative recoupment periods for total and additional capital investments are determined by making a careful study of:

(1) the mass data on the actual duration of the recoupment periods for new and additional capital investments which had been carried out over a number of years;

(2) changes in the conditions of mechanization and automation which will take place while the normative recoupment periods are in force.

***

The problem of selecting a basis of comparison for indices of economic effectiveness is of major importance in determining the economic effectiveness of introducing new equipment.

In choosing a basis of comparison for indices of economic effectiveness of mechanization and automation, it should be borne in mind that these indices are being compared for the purpose of solving two different matters. The first involves the solution of the problem of whether the

realization of the given mechanization and automation measure is economically expedient. The second consists of determining the actual magnitude of the economic effect on the national economy per unit of time (a year), provided the mechanization and automation facilities created (machines, apparatus, equipment, instruments, etc.) are correctly utilized.

In solving the problem of the economic expediency of introducing the given measure, the bases for comparison of the economic effectiveness of mechanization and automation are either the best examples of mechanization and automation already introduced in our country as well as those in foreign practice which yield higher economic effectiveness, or samples of mechanization and automation which have been worked out in draft form and tested.

In determining the actual magnitude of the economic effect to be derived in the course of a year by the national economy from the introduction of the given variant, provided the mechanization and automation facilities (machines, apparatus, instruments, devices, etc.) are correctly employed, different samples of mechanization and automation are taken as the basis of comparison, depending on the following circumstances:

(1) if the mechanization and automation samples introduced serve to substitute for obsolete samples, then the obsolete samples are taken as the basis for comparison;

(2) if the samples of mechanization and automation to be newly introduced are employed for the first time at new production sections or at newly built enterprises, then the average or most extensively used existing mechanization and automation samples are taken as the basis for comparison.

In modernizing equipment (machines, apparatus, instruments, devices, etc.), both for solving the question of the economic expediency of the modernization measure and for determining the magnitude of the economic effect to be derived by the national economy in the course of a year from this modernization measure, the same equipment prior to its modernization is taken as the basis for comparison.

If the designing, introduction and mastery of the new samples of mechanization and automation are to take a number of years, a correction should be made in the indices serving as the basis for comparison with due consideration for their changed condition by the time the new samples are mastered.

In those cases in which the mechanization and automation samples being introduced increase the scale of production (i.e., the output program for the given type of goods), the indices serving as the basis for comparison of mechanization and automation measures should be adjusted to account for the change in the output program.

If the variants of mechanization and automation which are being compared differ in the periods required for their designing, manufacture and introduction, then the effect of the time factor on economic effectiveness should be taken into account. This is done in the following manner: the economic loss which the national economy suffers from the slower introduction of equipment in production must be added to the capital expenditures on the variant which requires time for designing, manufacture and introduction. This loss is expressed as the product of the following three values:

(1) the normative coefficient of effectiveness,

(2) the difference in the period of designing, manufacture and introduction of the mechanization and automation variants being compared (in years), and

(3) the amount of capital investments which remain in an uncompleted state during this time.

When, along with the mechanization and automation of production, some other measures are being carried out (for instance, the production volume is being increased, specialization and cooperation are being extended, and the production technology and quality of goods is being improved), then it is not only the economic effect derived from the introduction of the whole combination of measures that is to be determined, but also that derived from mechanization and automation measures taken separately.

The magnitude of the economic effect derived by the national economy as a result of introducing mechanization and automation should be determined in accord with the actual operating conditions of mechanized and automated production. This means that in determining the annual savings stemming from reductions in production costs, we must use real transport expenses, expenses for materials, power costs, etc.

In accordance with the methodology presented in this paper, the economic effectiveness of the following two measures was determined:

(1) the all-round mechanization of a foundry conveyer

(Continued on Page 63)

Indices	Unit of measurement	Indices used as basis for comparison	Indices obtained after realization of measures	Change of indices: increase (+) decrease (-) absolute: in %	Best indices in USSR and other countries
1. Capital investments:					
(1) total	thous. rubles	760	1700	—	—
(2) additional	"	—	500	—	—
2. Production costs:					
(1) per unit	rubles	113	108	- 5	- 4.4
(2) annual	rubles	5650	5400	-250	- 4.4
3. Recoupment period of capital investments:					
(1) total	years	—	6.8	—	—
(2) additional	years	—	2	—	—
4. Labor productivity of workers	thous. rubles	329.6	741.5	+ 412	+125
5. Annual output	thous. rubles	3678.15	5932.5	+2254.35	+ 61.3

Voprosy Ekonomiki - Problems of Economics - No. 12, 1959

T. Khachaturov:

Economic Effectiveness of Integrated Mechanization and Automation

Major changes in technology have been taking place in recent years which bear the nature of a new technical revolution. This is of great importance for accomplishing the tasks of comprehensive communist construction and building up the material and technical basis of communism.

A tremendous increase in labor productivity is needed to achieve an abundance of products. Let us assume that industrial output in 1975 will approximately treble, as compared with 1958, while the population will increase by 25-30%. If we assume that the number of workers in industry will increase to the same extent, then labor productivity should rise by approximately 130-140% and, taking into account the shorter working day, even more. Such a growth in labor productivity is possible only on the basis of rapid technical progress.

Integrated mechanization and automation of production is one of the basic means of technical progress, which assures high rates of growth in labor productivity. An extensive program for finding the most effective paths toward integrated mechanization and automation was mapped out in the decisions of the plenary meeting of the Central Committee of the CPSU held in June 1959.

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Automation of production was begun in our industry, transport and other branches of the national economy even before the Great Patriotic War. In post-war years its application has been considerably extended. It is also being increasingly applied in the developed capitalist countries, particularly in the United States. In that country capital investments in automation in 1959 amounted to about 5 billion dollars, and in some branches comprised one-third and even one-half of all investments. Automation is being extended to ever new branches. As early as 1952 the American economist John Diebold classed the machine building, chemical, cement, oil refining, glass, artificial silk, printing, bread baking and some other industries among those "ripe" for automation. Since then this last has been greatly extended. The term "second industrial revolution" has even appeared after the war in the literature dealing with automation and other problems of technical progress.

Automation, of course, represents a very great change in the techniques of production. It is taking place simultaneously with great changes in the power and raw material industries resulting from the initial industrial application of atomic energy, rapid successes in radio-electronics, the wide employment of synthetic materials, etc. It will be recalled that as a result of the industrial revolution of the 18th century machines began to replace manual labor. In the middle of the 20th century there began the process of replacing machines operated by man by a system of machines with automatic regulation and direction of the production process, leaving man only the functions of control and management. (1) But the appraisal of the industrial revolution merely as a revolution in technology, which is widespread in present-day foreign literature, is inadequate.

The industrial revolution of the 18th century signified an upheaval not only in technology but also in the mode of production. Large-scale capitalist production replaced the manufacturing stage. The present-day shift in technology, which is connected with automation and other innovations, would deserve the name of a new industrial revolution if profound social changes, changes in the mode of production, were bound up with this upheaval in technology. And these shifts are inevitable. It is becoming increasingly clear that if the use of machinery is inherent in the capitalist mode of production, the new technology, based on the automation of production, grows beyond the bounds of capitalism and imperatively dictates the need for changing the mode of production, for socializing the means of production and going over from capitalism to a higher stage of social development, to socialism.

The rapid development of automation in the capitalist countries is closely bound up with an inevitable aggravation of all the contradictions of capitalism.

The quest for maximum profits is the basic factor promoting automation in the capitalist countries. A poll conducted by the journal Automation among over 2,000 industrial establishments has revealed the following motives for the introduction of automation: reduction of production costs — 94%; expansion of output — 78%; improvement of quality — 74%; elimination of losses in processing — 37%; a shortage of necessary labor — 16%.

The use of mechanization and automation devices is of advantage to the capitalist only when production expenses, including the interest in the capital invested in these devices, are lower than the expenses of production with the existing implements of labor. Marx wrote that "the use of machinery for the exclusive purpose of cheapening the product is limited in this way — that less labor must be expended in producing the machinery than is displaced by the employment of that machinery. For the capitalists, however, this use is still more limited. Instead of paying for the labor he only pays for the value of the labor-power employed; therefore, the limit to his using a machine is fixed by the difference between the value of the machine and the value of the labor-power replaced by it." (2) At the same time, the use of new machines can yield a saving in supplies, raw materials and power as well. Of importance also are their length of service and the rate of interest on long-term investments, since the capitalist views each investment in terms of the interest paid on the employed capital.

Numerous data show that in a number of cases automation is undoubtedly of advantage to the capitalists, since it leads to a decline in capital investments and current production expenses. Thus, according to data cited by W. Reuther, President of the CIO, to the US Congressional subcommittee on economic stablization, an automatic installation manufactured by the Cross Company and used for the manufacturing of automobile parts costs 318,000 dollars

and replaces 5 machines costing a total of 540,000 dollars. The Cincinnati Milling Machine Company has introduced an automatic machine line which costs 230,000 dollars and replaces 6 machine-tools whose total cost is 240,000 dollars. Simultaneously, wage costs were cut from 20 cents to 4 cents per part. Hugh Jones, in a lecture on "Automation Today" published in a symposium he edited on "Automation in Theory and Practice," points out that an automatic machine line for the production of engines at the Austin Motor Company which costs 26,000 pounds sterling has replaced 13 machine-tools costing 31,000 pounds sterling; output has increased 20%, wage costs have been cut by 80%, the expenditure of electricity by 30% and the space occupied by the new machine line is 20% smaller than that taken up by the old machines.

In a number of cases capital investments during automation grow somewhat, but to such a small extent that they are recouped in very brief periods. The English progressive economist Lilley cites data in his book for the Leo Computers firm which claim that its improved model of an electronic computer costing 75,000 pounds, if used 40 hours a week, saves 80,000 pounds on wages in one year, or, in other words, is recouped in less than 12 months.

We may present examples of longer periods of recoupment. For example, at the Ford plants an automated installation which performs 70-80% of the machine processing operations and which costs 200 million dollars will be recouped, in the opinion of the management, within 10 years if it has a daily output of 4,500 engines.

Thus, automation undoubtedly is a quite profitable matter for each factory which introduces it, and this explains its rapid extension and the sizeable investments in it. But the consequences of automation under capitalism are determined not only by the advantages or disadvantages for the given factory. Automation leads to a sharp aggravation of the contradictions of capitalism, an aggravation of the main contradiction, namely, that between the social nature of production and the private mode of appropriation.

Automation causes a huge increase in output and requires a constant expansion of markets. An automatic machine for the mass production of bulbs for electric lamps was introduced in the United States in 1930. Subsequently, the principles of operation of this machine were used in developing an automatic machine which is owned by the General Electric Company and the British Thompson Houston Company. This automatic machine produces 1.5 million glass bulbs daily, which makes it possible not only to cover the requirements of all electric bulb factories in Britain but also to export bulbs to European countries and the British Commonwealth. Such mass production is possible only in conditions of uninterrupted sales. If the market should be glutted and less bulbs were needed, the automatic machine would become disadvantageous. Here is another example. Automation in the American automobile industry undoubtedly has been one of the major factors making for a big expansion in the output of automobiles, which at present amounts to 7-8 million motor vehicles annually. This large growth of production also requires a corresponding increase of markets. But the sale of automobiles encounters difficulties. In 1955 the number of unsold automobiles in the United States exceeded 350,000, in 1956 it reached 700,000 and then climbed to 900,000. The sale of automobiles on the installment plan is growing all the time. The number of unsold automobiles is rising in Britain as well. The sale of automobiles in other countries is hampered by the competition of exporters from France, Italy and West Germany. As a result, automobile plants have to curtail production. Under these conditions automated production may become unprofitable. Mass production and, consequently, the introduction of automation in other branches, in the radio equipment industry for example, is running up against similar marketing limitations.

With the ever broader introduction of automation, marketing difficulties rise sharply. The point is that automation reduces the number of workers and thereby cuts the effective demand. American bourgeois scholars are trying to deny this fact. More than that, for example, the economist John Diebold, mentioned earlier, writes that one of the chief factors causing the growth of automation in the United States is an alleged shortage of labor, which does not at all correspond to American data on the reasons for automation which we presented earlier. In reality, under capitalism automation inevitably leads to a reduction in the number of workers, to their ousting from industry. Contrary to the assertions of bourgeois apologists, unemployment in a number of capitalist countries, the United States in the first place, is not declining at all; in the future this problem will grow increasingly acute. An insoluble contradiction arises. While the economic effect of automation consists largely of a reduction in wage costs, on the other hand this inevitably entails a reduction in consumption and hence in sales, without which mass production, and consequently automation, is impossible.

Automation, which leads to the ousting of workers from industry, unemployment and greater exploitation, at the other pole of the capitalist economy leads to greater profits, to the concentration of production and the growth of monopolies. Although automation in a number of cases requires smaller capital investments as compared with non-automated production, nevertheless it requires substantial additional funds for the purchase of new machine-tools and devices. Only the largest enterprises are able to allot such funds. According to statistics of the journal Automation, out of a total of 5 billion dollars invested in automation in 1959, large mass-production plants accounted for 3 billion dollars, middle-sized plants for 1.3 billion dollars and small enterprises for 650 million dollars. At the same time the plants which effected automation are usually in a better competitive position and can easily absorb their smaller rivals. All this leads to the concentration of capital, the growth and strengthening of the monopolies.

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The situation is entirely different in the USSR, where automation and mechanization represent highly important elements of technical progress. In socialist society the economic limits for the employment of machines are much broader than under capitalism, if only because the cost of the machine is compared not with the wages of the workers it replaces but with the entire net product they produce, i.e., with the sum of the workers' wages and the product they produce for society. Moreover, in socialist society, account is taken of the easing of the labor of the workers which results from the introduction of new machines and other advantages of the latter.

As a result of the vast social and economic changes in the USSR, the material and technical basis of socialism was built in a very brief historical period after the great October Socialist Revolution; a transition was effected from primitive technology, from a poorly developed industry to a modern advanced industry capable of producing such highly complex things as space rockets and installations for thermo-nuclear reactions, and an extremely backward agriculture was converted into modern mechanized agriculture. In the technical level of a number of industries the USSR has already left developed capitalist countries

far behind. The task now is to build up the material and technical basis of communism. A very important part in accomplishing this is going to be played by all-round mechanization and automation.

The national economic effectiveness of integrated mechanization and automation consists first of all in that they accelerate the rates of expanded socialist reproduction, ensuring a huge rise in labor productivity.

Automation, ensuring a more appropriate technological set-up, increases the productivity of equipment. The wear and tear of equipment is reduced, the amount of repair work and the expenditure of raw material, fuel and power is cut. Improvement in the quality of output is of great importance. In the machine building industry, for example, high precision of processing in mass production is attained; in the food industry foodstuffs are manufactured without the human hand touching them, and so on. In a number of cases, only automation ensures a change-over to continuous direct-flow, highly efficient processes. Only automatic control makes it possible to sharply increase the speed of rolling mills. The technological process of continuous pouring of steel in impossible without automation; the operation of atomic electric stations and the production of nuclear "fuel" requires automatic control.

At the same time, automation lightens working conditions and makes them safer, making it possible to get along without people in shops injurious to health in chemical and other factories, to raise the speed of production processes without increasing the intensity of labor.

A growth of labor productivity in the USSR, by reducing the requirements of labor-power, brings about a reduction of the working day and the working week, longer holidays, etc. This, in turn, enables the working people to spend much more time on the acquisition of knowledge, cultural advancement and all-round intellectual and physical development.

Automated production requires job-setters, technicians and engineers, i.e., workers of higher qualification, first of all mental workers. At the same time, the training of skilled workers for the operation and control of mechanization and automation devices becomes exceedingly important. The advantages of the socialist system, manifested especially in the highly developed system of education, made it possible to raise the number of specialists with a secondary or higher education engaged in the national economy to 7.5 million in 1958. The high degree of skill of workers in industry facilitates the ever broader display of their initiative in improving machinery and introducing advanced technology. All this has accelerated the process of obliterating the essential distinctions between mental and physical labor.

While under capitalism mechanization and automation deepen social contradictions, in the USSR mechanization and automation, as important means of technical progress and the development of productive forces, fully conform to the socialist relations of production. At the same time, their widest possible introduction becomes one of the basic conditions for the most rapid creation of the material and technical basis of communism.

Definite distinctions exist in the levels of mechanization and automation, which to a certain extent conform to the stages in their development. So far partial mechanization is most widespread. It covers the most labor-consuming part of the production process while retaining a considerable share of manual operations. Manual operations frequently reduce the effectiveness of the employed machines. That is why ever greater significance is assumed by integrated mechanization, which provides for the full replacement of manual labor by machinery, including auxiliary operations, and the performance by workers of functions of controlling the machines. Automation may also be partial when it covers only one technological process and part of the functions of controlling the machines, while the other control functions are performed by the workers. Integrated automation provides for the fulfillment of all working and operating functions by machines, while personnel have to perform only the functions of setting the machines and of control. The highest stage of integrated automation is represented by an automatic system of machines which ensures self-control throughout the entire production process in accordance with a set program.

Definite successes have already been registered in the development of mechanization and automation. But these achievements are very uneven among the various branches and separate sections of the production process. This is explained both by the different degree of readiness of their technology for mechanization and automation, and frequently by the insufficient utilization of the available opportunities. Here are examples from some industries.

Considerable achievements in automation and mechanization have been scored in the power industry. According to figures of the Central Statistical Administration, the total capacity of power systems controlled from dispatching points amounted to 90% of total power system capacity in 1958: 109 large and medium-sized hydroelectric stations with 382 units and a total capacity of 9.5 million kw. were automated, which amounted to 90% of the total capacity of all hydroelectric stations. Most hydroelectric power plants are remote-controlled from dispatching points located hundreds of kilometers away at times. At large stations 4-5 men work per shift, and at medium-size plants, 1-3 men. Twenty stations in general operate without a regular staff. On the whole, automation and mechanization have made it possible to reduce the production personnel at large hydroelectric stations from 7,000 to 4,000.

At small hydroelectric stations, of which there are about 7,000, automation and all-round mechanization are far from adequate. It is quite possible to combine a few small hydroelectric stations into cascade groups, with a general administrative and technical management and service personnel. For example, in the Chirchik-Bozui waterway (Uzbekistan), 16 hydroelectric stations have been combined; 11 of them operate without any personnel on duty and are controlled from the basic hydroelectric stations. This has made it possible to reduce the service personnel by 700 people (by nearly 66%) and also to cut the production cost of electricity by 15%. All outlays have been recouped in two years.

The automation and integrated mechanization of thermal electric stations is much more difficult. All new district heat and power plants of the block type (boiler-turbine-generator-transformer) are built with automation of all the thermal processes and centralized control of the blocks. This, for example, makes it possible to have only one-tenth of the personnel required in the older district heat and power plants. At operating stations with centralized control, all-round automation is usually not justified because it involves quite substantial capital investments for the radical reconstruction of equipment and technological circuits. The term of recoupment of these capital investments is too long. A much greater effect is obtained at existing heat and power plants by partial automation of separate processes. Almost all boilers have automatic water feeders; full automation of combustion processes was employed at 900 powerful boiler units in 1958, which yielded a considerable saving in fuel. Many other pieces

of equipment have been automated, for example, the switching devices, equipment for changing the operating regime, etc. Automation and mechanization should also cover other production processes at heat and power plants. The most labor-consuming jobs in the fuel transport shops should be fully mechanized in the first place.

Mechanization is inadequately integrated in the coal industry. To this day, alongside almost completely mechanized processes such as hewing, breaking and transporting the coal in the stopes, many processes are still poorly mechanized, while roof propping and other important jobs are done by hand.

By 1965 it is planned to introduce all-round mechanization in 30% of all the mine faces. This will yield a considerable economic effect. For example, mechanization of propping, although it demands somewhat greater capital investments and expenditures of materials, cuts coal production costs to such an extent that this measure is recouped within six months to two years.

The hydraulic method of coal mining with the help of powerful hydromonitors and hydraulic transportation is highly effective. Employment of this method at the Polysaevskaia-Severnaia mines in the Kuznetsk Basin shows that capital investments and labor expenditures are cut substantially, while labor productivity is doubled or trebled. Hydraulic mining presupposes the all-round mechanization of the entire technological process, and a number of processes can easily be automated as well. By 1965 the production of coal by this method is to be brought up to 45-50 million tons annually, and hydraulic mining and transportation is expected to yield a saving of 4 billion rubles in production costs and 4 billion rubles in capital investments in the seven-year period.

Strip mining of coal is economically advantageous. By 1965 about 140 million tons will be mined by this method annually. Strip mining makes possible the all-round mechanization of the entire technological process. It is also much easier to introduce automation at strip mines.

Automation in the coal industry is only making its first steps so far. Recent years have seen the introduction of automation and remote control of some machines and equipment, of hoists, conveyer belts, cranes, underground water pumps, mine ventilators, etc. Automation of this machinery and equipment will sharply cut the number of workers servicing them, by as much as 90 to 95%. In some cases no workers will be needed at all. The automation expenses will be recouped in a very short period, 1-2 years.

Many designing, research and educational establishments are now working on the solution of the problem of mining coal without the presence of workers in the mine faces. A solution of this problem will be of tremendous economic and social significance. But so far such installations have not been tested and introduced, and it is difficult to judge their possible effect.

The level of mechanization in the oil and gas industries is high. All the extraction processes have been largely mechanized. On the other hand, automation has been only partially introduced so far. Automation and centralized remote control and operation of wells from dispatching points are highly effective economically. At the Bavlyn Oil Trust output per worker after the introduction of automation and mechanized remote control of the oil fields rose 38% and it became possible to release a considerable number of workers directly engaged in oil extraction. According to calculations of the USSR Oil Research Institute investments in automation are recouped through lower production costs in 1 to 3.5 years. At the Bavlyn Oil Trust the investments are recouped in 2.7 years. It should be noted that in the United States, too, oil-field automation expenses are recouped in very short periods, from one to three years.

Extensive introduction of local automation and remote control systems in the oil industry are planned in the current seven-year period. Automation will yield a net saving of about 850 million rubles annually and the term of recoupment will be two years on the average.

In the gas industry all extraction processes are fully mechanized. The main task of automation is the group collection of the gas and automatic control of the wells. This will make it possible to reduce the service personnel to a mere fraction of present requirements and cut the cost of producing gas by 15% and more. Investments in these automation measures will be recouped in about five years. By 1965 integrated mechanization is to be introduced at no less than 75% of the gas wells.

In the iron and steel industry a number of operations of controlling and regulating blast furnace smelting have been automated. About 95% of the pig iron is produced with the help of instruments which regulate the temperature and intensity of the blast. All large furnaces have regulators of the humidity of the blast and of gas pressure at the furnace top. Up to 95% of the open-hearth steel is melted in furnaces equipped with control instruments and automatic devices for regulating the heat regime. But the level of automation in steel rolling is inadequate so far: only 50% of the rolled stock is produced in mechanized rolling mills, and cleaning and finishing operations are poorly mechanized. Much remains to be done to mechanize auxiliary jobs. The current Seven-Year Plan calls for introducing integrated automation in the iron and steel industry, first of all in blast furnace operations and steel melting and also in rolling.

Much has to be done as regards all-round mechanization and automation in the machine building industry. At present 1.9 million metal-cutting machine-tools are in operation in the Soviet Union as compared with 2.2 million in the United States. But the requirements for high-efficiency machine-tools are greater than the level of their production achieved to date. The share of automatic and semi-automatic models in the total output of machine-tools is still insufficient (33%); by the end of the current seven-year period it will be brought up to 43%. The rate of output of automatic machine lines is still low. In the fourth Five-Year Plan 41 automatic machine lines were produced in a centralized way, in the fifth Five-Year Plan 67, and in the three years between 1956 and 1958, 61. The Seven-Year Plan calls for the creation of no less than 1,300 automated plants, shops and lines in the machine building industry.

The effectiveness of automatic machine lines in the machine building industry varies quite considerably. There are a number of cases in which they are highly effective. Thus, capital investments in an automatic line for the mechanical manufacture of a crank-case unit at the Hammer and Sickle Plant in Kharkov will be recouped in 2.5 years; in an automatic line for producing a cylinder block of a Diesel engine the recoupment period is four years, and in an automatic line for producing the block cylinder head it is five years. At the Moscow Low-Power Motorcar Plant, designers' calculations show that investments in an automatic line for producing the slots under the crankshaft and the camshaft in the engine cylinder block of the Moskvich 407 will be recouped in 7.2 years when compared with the former direct production line of machines. There are also cases of longer periods of recoupment, for

example, at the automated piston factory in Ulyanovsk. Some automatic lines even result in a higher cost of production. For example, at the First State Ball Bearing Plant the cost of manufacturing and assembling ball bearing rings is higher on the automatic line than when done on separate machines. These differences are explained by various reasons, including the fact that expenditures on designing and experimenting, which required costly unique equipment, were included in the costs of automation. Another telling factor was the shortcomings in the operation of automatic lines. Specifically, in some cases no radical change in the technological process called for by automation was made, precise supply provisions were not organized, there were interruptions in operation, increased spoilage, etc.

Examples of high effectiveness of mechanization and automation could be cited in other industries as well, particularly the chemical industry, transport and agriculture.

An analysis of the available material makes it possible to conclude that mechanization and automation so far have been carried out rather unevenly by branches and separate links of the production process. This is a result of insufficient integration and inadequate study of the effect mechanization and automation can yield.

The 21st Congress of the CPSU and the Plenary Meeting of the Central Committee of the CPSU (June 1959) indicated the main trends of all-round mechanization of production in separate branches of industry, construction, transport and agriculture. The existing shortcomings in mechanization trends should be eliminated in the process of accomplishing these tasks. The fact that mechanization is not integrated, and alongside machines some important technological processes are performed by hand, has an extremely adverse effect on the utilization of machinery and equipment. That is why the study of experience in the use of machines and equipment is so important.

It is highly important to correctly select the types of machines so that they conform to the conditions of operation and to organize the entire technological process so that the idle time of machines is reduced to a minimum. Experience has shown, for example, that powerful walking excavators have been used improperly in cases where they had to be shifted frequently, that the efficient use of coal combines is limited by the lag in roof propping and improving underground transportation, etc. It is necessary to design the most efficient machines and equipment in an integrated way, providing simultaneously for the most rational organization of the production process conforming to these machines.

It is necessary to correctly establish the sequence of mechanization and automation; they should be effected in the first place where they ensure the utmost economic effect, replacing manual labor and raising labor productivity. It is necessary to study the sectors of the national economy where mechanization and automation can be most effective, where manual labor is most widespread.

Of great interest from this point of view, for example, is the study of the number of workers of different groups, made by the Central Statistical Administration and summarized in the book of Ia. B. Kvasha, Statistical Study of Labor Mechanization (1959). According to these figures 70% of the workers engaged in loading and unloading jobs in Soviet industry work by hand. The number of workers engaged in repair jobs is also quite high and their productivity is low. Altogether 62.1% of the workers in industry were doing manual labor in 1954. Some of these manual operations are subject to mechanization only with difficulty. More than that, some categories of manual workers have appeared as a result of mechanization (for example, repair mechanics, electricians, tool-and-die makers, pattern makers, and others). But much arduous manual labor is still performed. According to the same calculations, the proportion of workers doing manual labor on jobs which could be directly mechanized amounted to 44.2%, with the share of workers doing unskilled manual labor amounting to 22.2%. It is here that many important possibilities for mechanization are to be found.

The inadequate level of mechanization in industry is also shown by the rather high proportion of auxiliary workers. Thus, for industry as a whole the ratio of basic to auxiliary workers was 55:45, while in some branches the share of auxiliary workers was even higher than that of basic workers. In the United States the share of auxiliary workers in the iron and steel industry is 30% and in Soviet industry 57%. Mechanization and automation can substantially reduce the number of auxiliary workers, thus raising the economic effectiveness of production.

All-round mechanization and automation can play a particularly important part in areas with an inadequate supply of labor, first of all in the development of labor-consuming industries. Measuring the effectiveness of mechanization and automation in cost terms alone may prove insufficient in such cases. Indeed, if there is a shortage of labor in the given area, the effectiveness of mechanization and automation will consist not only in a saving on current expenses; mechanization and automation will enable society to develop production where this was impossible owing to the shortage of labor. Specifically, they are of great importance in areas of the North and the East, in the coal, nonferrous metals and timber industries, in construction, etc. But in such cases a comparison should be made of the effectiveness of mechanization in different areas. If, for example, the necessary quantity of coal can be mined with the help of mechanization in the Pechora or Kuznetsk areas, it is necessary to make a comparative analysis of the effectiveness of this measure in both areas, taking into account the distance and the expense of transporting the coal to the place of consumption.

Automation, just as all-round mechanization, is being introduced quite unevenly by branches as well. This is explained by the fact that various industries have become "ripe" for automation in different degrees, i.e., are differently prepared for it by the nature of technological processes and the scale of production. Hence, it is very important to establish the sequence of automation, and on the other hand, to carry out organizational measures in a number of industries which would make automation more effective.

It is clear that automation is most effective when the mass production of standardized goods of the same type is needed. This naturally is not the case in all industries and at all enterprises. But it is quite possible to carry out measures which extend the possible use of automation and extend the scale of production. Such opportunities, for example, are afforded by specialization and co-operation which help concentrate production in a smaller number of places. Greater mass production can be promoted by a reduction in the number of models, which at times are too numerous, by the standardization of quality, etc. Of great significance for the successful introduction of automation is the steady provision of automatic factories, shops and machine lines with spare parts, raw materials and supplies in order to prevent any interruptions in supply, and also a change in the entire organization of production so as to achieve maximum co-ordination. It is exceedingly

important to develop the production of measuring and control instruments and other implements of labor necessary for the successful installation of automation devices, the further improvement of these devices and reductions in their costs. Lastly, the successful development of automation depends to a large extent on the training of highly qualified job-setters, electricians and others who have to set up the automatic machines and control their operation.

The concrete objects of mechanization and automation should be determined on the basis of the economy's capital investment plan, taking into account the specific features of industries and areas. This plan, drawn up on the basis of the balance-sheet method, should also take into account the comparative economic effectiveness of automation and mechanization measures.

The plenary meeting of the Central Committee of the CPSU (June 1959) instructed the USSR State Planning Committee, the USSR Academy of Sciences, the State Scientific and Technical Committee of the USSR Council of Ministers and the USSR Academy of Construction and Architecture to elaborate in 1959 the methodology of determining the economic effectiveness of the mechanization and automation of production, taking into account the specific features of separate branches. Work on elaborating this methodology is now in progress.

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The economic effectiveness of mechanization and automation is established on the basis of the same general principles as the effectiveness of capital investments in new technology, principles elaborated by the Institute of Economics of the USSR Academy of Sciences, jointly with other economic scientific institutions. At the same time, the methodology of determining the effectiveness of mechanization and automation takes into account their specific features as important means of technical progress, and also the national economic importance of the branches and areas where they are being introduced.

The economic effectiveness of mechanization and automation is expressed in an increase in the productivity of social labor and a decline in production costs. The full saving of social labor should be established, not only at the given factory or in the given industry, but in the entire national economy. Its own consequences should also be considered: easing of work, reduction of the working day, a rise in the skill of workers, creation of conditions for eliminating the essential distinctions between mental and manual labor, etc.

In our opinion the main indices of the economic effectiveness of automation and mechanization measures are:

(a) the value, or temporarily, until this is fully ascertained, the cost of production with the necessary adjustments,

(b) capital investments in the mechanization and automation of production (the total amount and the capital invested per unit of output),

(c) the coefficient of effectiveness, or period of recoupment, determined by comparing the additional capital investments (the difference in capital investments) and the difference in production costs.

To perform concrete calculations it is also necessary to work out a number of problems and to incorporate the results in the instructions on the general points of the methodology.

One of these problems is how to calculate wages. Under automation the wage system should be altered. It is hardly correct to apply the piece work system in the case of automation since the volume of output in automated production depends on the worker to a much smaller extent than in non-automated production. At the same time it is evidently expedient to apply bonuses for reducing spoilage. The calculation of wages on a time rate system will facilitate a reduction of production costs when the volume of output is increasing.

The effectiveness of mechanization and automation as regards raising labor productivity should be determined, in our opinion, not only by the reduction in the number of workers and the total payroll, i.e., not only by the saving in labor achieved in the given branch of the economy, but also by the effect which can be obtained from the release of labor for employment in the entire national economy. Under socialism there is no unemployment and the workers released as a result of mechanization or automation will always find jobs in accordance with their abilities in other sections of the economy. The utilization of these workers in other branches leads to an increase in the net national product, the national income, i.e., it yields an additional effect. Such an effect is inherent only in the socialist economy. Under capitalism the released workers, as a rule, swell the ranks of the unemployed.

A proper calculation of shop expenses and also general factory expenses, which at times comprise a considerable share of production costs, particularly in the machine building industry, is also very important. These expenses should be calculated directly and not determined in proportion to wages, since the share of production wages in production costs drops sharply under automation and this may lead to inexact and wrong conclusions.

In cases in which sales prices, rates, etc. deviate sharply from value it is necessary to use adjusted prices and rates in calculations of effectiveness, taking into account the cost of production and the average accumulations. Possibly, the cost of production as a whole should also be adjusted by adding to wages that part of value that goes for the creation of the social collective consumption funds, and also the value created by labor for society.

In determining the amount of capital investments, account should be taken not only of direct investments in the planned automation devices, but also investments in the development of related branches of the national economy needed to ensure the operation of these devices. These include investments in branches constantly linked with the given enterprise, for example, in the development of power and raw-material production, repair facilities, supply warehouses, etc. Account must also be taken of investments in the development of allied branches, for example, precision instrument making, if these expenses are called for by automation of the given type of production.

Investments in housing and the construction of cultural and other establishments, above all in newly developed areas, should be calculated separately and should not be included in the general figure of capital investments. The provision of the people with housing facilities is done by the state irrespective of one or another technical measure, including the introduction of new technology.

Expenses involved in increasing working capital should be added to capital investments in mechanization and automation devices because the latter may bring about changes in the stocks of raw material, supplies, or tools, thereby causing changes in the amount of working capital. (Should working capital decline, the saving should be deducted from capital investments.)

Account of the losses sustained as a result of writing off fixed assets while they can still be utilized is an important point as well. These losses should be added to the capital investments in an amount equal to the actual value of these fixed assets as of the day when they were written off.

In choosing a basis for comparing the indices of economic effectiveness of mechanization and automation two problems must be borne in mind: first, is the measure economically expedient in general, and second, what is the real magnitude of the economic effect in the given branch, at the given enterprise. To solve the first problem the finest models of already existing mechanization and automation in the USSR and other countries are taken as the basis for comparison, and for solving the second problem, the models of mechanization or automation which are being introduced or are most frequently used in the given branch. In cases in which mechanization and automation lead to reductions of production costs and savings on capital investments, the question of the period of recoupment of the additional capital investments does not arise and the variant which gives the lowest production costs and capital investments is chosen.

If mechanization and automation require additional capital investments, it is necessary to calculate the coefficients of effectiveness of capital investments or the periods of their recoupment (in these cases it is a matter of calculating the relative and not the absolute effectiveness of the capital investments). The derived periods of recoupment or coefficients of effectiveness should be compared with the established norms.

Experience has shown that automation and mechanization in a number of cases ensure brief periods of recoupment — one or two years and even less. But, in our opinion, the minimal periods must not be taken as the standard ones.

Some economists claim that it is necessary to apply the minimal periods of recoupment, for example, two years. But this would mean, for example, that measures which will be recouped in three years should not be carried out. This would only hamper automation and mechanization, especially in view of the novelty of the matter and the intricacy of solving new technical problems.

If automation and mechanization measures differ as regards the duration of designing, manufacture and introduction, account should be taken of the time factor in making an economic comparison of the variants. The economic result of reducing or increasing the time required for carrying out these measures should be reflected by adjusting the sum of the needed capital investments, taking into account the average effect which could be obtained in other sections of the national economy, provided the capital investments are used efficiently. In practice this means that if, according to one variant, capital investments will be made later, their magnitude is not equivalent to the magnitude of capital investments made at the given moment. Capital investments of future years should be reduced to capital investments of the given moment through multiplication by the coefficient $K = \frac{1}{(1 + \Delta)^t}$, in which Δ is the average coefficient of effectiveness for the national economy as a whole, and t is the number of years for which the capital investments can be deferred.

Particular importance should be placed on deriving a comprehensive and complete estimate of the savings of social labor obtained as a result of automation and mechanization, not only at the given enterprise, but also in allied branches and the national economy as a whole. We must also take into account the social consequences of automation and mechanization. It is necessary, alongside value indices, to consider natural indices: the increase in labor productivity, reduction in the time needed for the development and introduction of new technology, the higher level of utilization of production capacities, the operating speeds of equipment, improvement in the quality of output, better organization of production, improved working conditions.

Lastly, a differentiated analysis of the effectiveness of automation and mechanization as such and of other closely related measures is of great importance: heightened specialization and co-operation, radical change in the technology of production, change in the volume of output and its quality, etc. Each of these measures influences production costs and the level of capital investments, and their effectiveness must be brought out separately for the purpose of establishing the effectiveness of automation and mechanization more precisely.

The methodology now being elaborated for calculating the effectiveness of automation and mechanization as a whole, taking into account the specific features of separate branches, will enable planning and designing agencies, research institutes and industrial enterprises to determine the sequence for carrying out these measures and contribute to their successful introduction. This should play an important part in accelerating technical progress in the process of building the material and technical base of communism.

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Literature Cited

(1) Marx brilliantly foresaw an automatic system of machines. He wrote: "As soon as a machine executes, without man's help, all the movements requisite to process the raw material, needing only attendance from him, we have an automatic system of machinery, and one that is susceptible of constant improvement in its details." K. Marx, Capital, Vol. 1, 1954, p. 387 (Russian edition).

(2) Ibid., p. 398.

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V. Dadaian:

Mathematical Methods Are Coming Into Use in Economics

The tremendous sweep of communist construction in the USSR poses a number of tasks of the greatest importance. One of these involves the enrichment of planning practices and guidance of the national economy in every possible way with the newest findings in economic science and in modern computing techniques.

Every-day experience presents us with the kinds of problems whose rapid and efficient solution is simply impossible without the use of mathematical methods. For example, given the existing location of the metallurgical industry and prevailing requirements for rolled metal, we must find that variant of railroad shipments which involves minimum costs. If we keep in mind that rolled metal is produced at relatively few points while it is consumed everywhere, it is clear that in attempting to find a scientific basis for one or another decision the very number of possible transportation variants eliminates any inclination to attempt calculations in the old way.

Moreover, even before the war Soviet scholars proposed a general methodology for solving problems of optimal planning, which later became the foundation for the so-called method of linear programming. Given a number of possible variants, this method permits us to select those which yield the minimum or maximum (depending on the problem) indicators required: for example, the minimum cost of transportation, as in the preceding example, or the maximum production of goods with given resources. This method is also applicable to a large number of other problems, beginning with the working out of the most rational system of utilizing equipment at enterprises or the most economical method of cutting out material, and ending with the elaboration of the most rational system of economic ties within the country as a whole. This method guarantees a high degree of precision, makes it possible to check on the results obtained, and absolutely guarantees that the selected variant is actually the best possible one in the concrete situation.

The effectiveness of mathematical methods of solving economic problems is explained, aside from anything else, by their reliance on the newest computing techniques, and above all, electronic computers. This accounts for the unprecedented speed with which calculations may be performed and the ease with which large number of computations may be carried out.

As an example we may cite the calculation of the optimal plan for shipments of building bricks on the Moscow-Kursk-Donbass railroad. This calculation, performed by personnel of the Institute of Integrated Transportation Problems, showed that with an optimal organization of shipments the total volume of transport operations could be reduced by 103 thousand ton-kilometers, or by 12%. Another calculation involved the optimal organization of brick shipments from 8 plants to 186 construction sites in Moscow. Its results yielded economies of more than 55 million rubles. All this was achieved without a single kopek of additional expenditure, wholly as a result of changes in the organization of operations!

Looking into the future, we can imagine the following picture. Every enterprise (or group of enterprises) has its own small electronic computer. With its help, factory economists calculate optimal production plans which ensure maximum output at minimum costs. In this process, the programs which are run through the computers provide for a readjustment of the production process in case of individual departures from the original assignments so that the required result will ultimately emerge: maximum output at minimum costs. The information received from each enterprise is stored in recording installations of larger electronic computers available at economic councils, and is then used as the basis for new optimal calculations of an inter-industry nature at the level of whole economic regions. The results of these computations, transmitted to a central computing complex which is equipped with powerful, rapidly operating electronic computers, comprise the final materials used by planning agencies to prepare an optimal production plan for the whole country.

There is nothing fantastic about this picture. There can be no doubt about the practical feasibility in our time of a system of electronic computers for purposes of planning and guiding the national economy. In the not too distant future, society will make a complete transition to an automatic system of optimal management and regulation of production.

In order to bring this day closer a great deal of difficult work must begin immediately.

The use of mathematical methods of economics does not by any means signify the mechanical application of classical mathematical methods in this area. If this were the case, the science of the quantitative study of the economy would become one of the branches of applied mathematics and no more than this. However, the very nature of economic problems and the specific nature of the economy as a social category create, first, the need to work out special mathematical methods, and second, the dependence of "measurement" in economics on a qualitative, social-economic analysis. From this stems the need for an organic connection between the new science and Marxist political economy. Thus, the next problem is that of creating a serious scientific base for elaborating mathematical methods in economics. Without such a base, without extensive scientific studies, without the most thorough and comprehensive theoretical elaboration of economic-mathematical problems, we cannot expect any significant useful effect to be derived from the practical application of the new methods in national economic planning.

A young science is taking its first steps. We must already take all necessary measures to open up "green fields" for it, to eliminate all obstacles and difficulties that stand in its way. And there are such difficulties.

First of all, there is no single scientific center which, together with its research activities, guides in a planned manner all the organizations working in this field. The number of such organizations is growing every day. Here we may cite the laboratory working on the application of mathematics to economics of the Siberian Branch of the Academy of Sciences of the USSR. Its plan provides for

working out a method of using inter-industry balance sheets for economic planning in regions, studying problems of capital investment effectiveness, constructing models of inter-regional balances of the social product, etc. The Institute of Electronic Control Machines of the Academy of Sciences of the USSR, besides studying methods of utilizing mathematical methodology for working out various balance sheet accounts, is examining certain aspects of an optimal fuel balance sheet. In the Gorky Institute of Water Transportation, engineers and economists, in close collaboration with mathematicians, are conducting research on the most rational methods of scheduling shipping operations and of loading and unloading ships in the Volga Basin. Various aspects of mathematical methodology in economics are being studied by the Economic Research Institute of the State Planning Committee of the USSR, the Institute of Integrated Transportation Problems, the Economics Section of the Council on Cybernetics of the Academy of Sciences of the USSR, Moscow and Leningrad Universities, the Moscow State Economic Institute, etc.

It is understandable that without a single leadership and a unified plan, both the research studies and the practical application of the new methods will become diffused into narrow channels and great efforts will later be required to transform the activity of each organization into a component part of an all-inclusive network of activities.

The introduction of mathematical economics into production management will be impossible without the training of corresponding personnel. The most realistic and efficient method of solving this problem, in our view, is to create a network of courses for raising the skills of economists and managerial personnel. It is also advisable to change the curricula of economics programs in universities, to expand mathematics courses and introduce additional courses on methods of optimal planning, dynamic programming, etc.

As a whole, the problem of utilizing mathematical methods in economic studies and in planning practice must be solved in an integrated manner. Who will take on the organizing mission? Could it be that the time has come for the State Planning Committee of the USSR to combine its forces with the Academy of Sciences? The need for their closest and most direct collaboration has long been urgent, and the area of economic-mathematical calculations is precisely the link which unites a high level of science with every-day economic practice.

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M. F. Solodnikov:

Costs of Production in Local Industry and Problems of Pricing

The 21st Congress of the Communist Party of the Soviet Union, which approved the target figures for the development of the national economy of the USSR in 1959-1965, will go down in history as the congress of the builders of communism.

The program of all-out building of a communist society, set forth in the report by N. S. Khrushchev and in the resolutions of the congress, is reflected in the major targets of the Seven-Year Plan. One of these is the development, on the basis of the growth of the country's productive forces, of the material-technical foundation for communism and the triumph of the USSR in the peaceful economic competition with the capitalist countries.

High rates of expansion of socialist reproduction are impossible without considerable capital expenditures. In this connection, the state's capital investments in the national economy will come to about two trillion rubles during the seven-year period.

Realization of the objectives of the Seven-Year Plan will be met in full out of the internal resources of our country, out of the accumulations of the socialist economy. The major portion of these accumulations will come from socialist enterprises.

Therefore, the introduction of the strictest economies, the struggle for increasing labor productivity and reducing production costs constitute a most important condition for carrying out the grandiose tasks confronting the Soviet people.

That portion of industry which is under the jurisdiction of the local Soviets is an inseparable component of the unified socialist national economy and has the function of participating in the production of consumer goods.

In 1965 the gross production of industry under the Chief Administration of Local Industry of the Leningrad City Executive Committee will come to 2600 million rubles which will be a 60.5% rise over 1958. The volume of capital investments during the Seven-Year Plan will be 196 million rubles, chiefly out of this sector's own profits. (1)

This means that the struggle for economizing the labor of society and for increasing accumulations in local industry is of the same significance as in industry as a whole.

Fulfillment of the objectives of the Seven-Year Plan will require a constant reduction in the expenditures of materials and labor by means of the strictest economies in all the branches of the national economy. This means that every enterprise must conduct a struggle for achieving the best possible results in plan fulfillment with the least expenditures of resources.

The calculation of expenditures in production, the sale of products, and the results of economic operations of enterprises and organizations is performed in value (money) form by means of cost calculations. The cost of production reflects the successes of enterprises in increasing the productivity of labor and in organization of production, etc.

The cost of production is intimately related to cost accounting. The need for these two categories is conditioned by the existence of commodity production and the operation of the law of value under socialism.

The law of value requires that the exchange of commodities take place in accordance with the amount of socially necessary labor expended upon their production. The social outlays of labor can be expressed only through the price of the commodity. Price is one of the most important categories of commodity production employed by the socialist state. The planning of prices is employed by the socialist state to stimulate the development of the forces of production, to promote the increase in socialist accumulation, and to improve the material well-being of the working people, etc.

These conditions can be met only if the price structure of an industrial product corresponds to the requirements of cost accounting. The price must compensate the cost accounting enterprise for all the expenditures involved in the production and sale of the product, and provide for the accumulations obtained. Moreover, price must not only ensure cost accounting, but the mobilization of accumulations by the state. These requirements are realized in the pricing of the industrial product.

In terms of their economic content, a distinction is made between the wholesale prices of the enterprise, wholesale prices of industry, and retail prices. The wholesale price of the enterprise is determined by adding from 3 to 5% in the form of profits to the average branch planned cost. The wholesale price of the industry for consumer goods also includes the turnover tax and the costs of marketing. The retail price differs from the wholesale price of the industry by the commercial markup.

The wholesale price of the enterprise is used in the sale of a product to the marketing agency for its own branch of industry. The wholesale price of the industry is applied in marketing the product outside that branch of industry. The retail prices are those at which consumer goods, primarily, are sold through the retail stores and public eating places.

In the price structure, profit and turnover tax represent two specific forms of net income and are identical in their economic nature. The presence of two types of wholesale prices, with differentiated rates of turnover taxes, makes it possible for the socialist state to employ price as one of the most important tools in its economic policy.

The markup is the difference between the retail price and the wholesale price, which already includes the turnover.

The system of commercial markups or markdowns employed by marketing organizations is designed to strengthen cost accounting in trade.

It should be noted that the price structure of any given commodity will vary in accordance with circumstances: the site of production and sale of the product, its significance to the economy, and the specific economic and political problems being resolved by society at the various stages in the building of socialism.

The basic price-forming factor, both in terms of its significance and in terms of its relative share is cost because the basis of price — value — may be determined only through a proper calculation of cost.

Cost represents 50 to 60% of the price of goods produced by local industry in Leningrad.

As a monetary expression of a portion of the value of the social product, cost is a generalized indicator of the functioning of the entire national economy, as well as of its individual enterprises and organizations. Costs reflect, as in a focusing lens, the results of the economic activities of an enterprise, and the planning of costs is intimately related to all the other components and indicators of the plan of an enterprise.

The costs of production are broken down into two types: social (branch) and individual.

Social costs are the average costs in the branch as a whole, the totality of the expenditures of each individual enterprise. The average branch cost of production represents the expenditures on the manufacturing and marketing of the product. It is uniform for the country as a whole, evens out the special features of the individual enterprises, and at the planning stage is determined by the maximum expenditures permissible in the production of the given product.

Individual costs take into consideration the special features of the individual enterprises: the level of technical equipment, the size and location of the enterprises, their type, the organization of production, etc.

Therefore, a comparison of the costs of production for various products at various enterprises within a given branch of industry (within combinations of enterprises) will show differences. Moreover, there will also be differences in the expenditures upon production from one branch of industry to the next. This is apparent from an analysis of cost structure in terms of the components of expenditure. Differences in the structure of production costs in various branches determine the different paths to be followed in reducing expenditures on production. These differences may be traced in local industry by examining the cost structure of commodity production for the Chief Administration as a whole, and for its individual branches.

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Table 1

Cost Structure of Commodity Output (in %)

Expenditures	All branches, by years			Individual branches of local industry (1958)		
	1956	1957	1958	Metal manufacturing	Chemical industry	Light industry
Material costs	70.3	66.7	67.3	57.1	88.75	73.5
Basic wages and supplements	12.5	14.7	14.7	18.3	3.05	14.5
Shop costs	7.4	13.0	12.9	18.1	4.2	8.9
Factory costs	2.8	3.6	3.4	4.4	1.8	2.4
Other costs	4.3	0.4	0.2	0.2	0.1	—
Total production costs of enterprise	97.2	98.4	98.5	98.1	97.9	99.3
Non-production costs (marketing expenses)	2.8	1.6	1.5	1.9	2.1	0.7
Total costs	100.0	100.0	100.0	100.0	100.0	100.0

Material elements constitute the bulk of costs, as we see. For industry as a whole they constituted 70.3% in 1956, 66.7% in 1957, and 67.3% in 1958. Analysis of these expenditures by branch of industry shows the way in which they differ in the cost structure. The reason for these differences is to be found in the nature of the branch of industry and in the organization of production.

Whereas they represented 67.3% for local Leningrad industry as a whole in 1958, the figure was 57.1% for the metals industry, 88.75% for the chemical industry, 73.5% for light industry.

Therefore, the struggle to reduce costs of materials is of the greatest importance.

In terms of material elements (raw materials, other materials, fuel) a saving of 1.28% compared to the plan was achieved in 1958, and this came to 14.4 million rubles.

As in 1957, more than half of this sum was derived from the use of industrial wastes to a greater degree than the plan had provided, the use of lower cost materials, as well as by the purchase of materials at a lower price than the plan had envisaged, etc. We find that half of the saving was not the result of the efforts of the enterprises themselves.

The best results in reducing material expenditures were achieved by enterprises of the chemical men's wear and the textiles and knit goods trusts where a savings of 2.5 million rubles more than the planned amount was derived. In 1958, 19.2 tons of cotton textile, woolen and semi-woolen yarns, 16.4 tons of knitted fabrics, and 6840 meters of miscellaneous fabrics were saved, totalling 1,121,000 rubles. This entire economy was achieved by cutting down the norms of material expenditures.

The reduction of production expenditures at the majority of enterprises, with occasional exceptions, was secured by factors under the control of the enterprises themselves: organization of production, mechanization and automation, changes in technology, etc.

Thus, a mirror factory saved 384,000 rubles by cutting down the amount of plywood, silver nitrate and other materials used. A button factory saved 465,000 rubles by using resin of its own manufacture in the polishing and grinding of buttons instead of purchased resin, by rational cutting of the organic glass, by sale of scrap, etc. To this day, local industry has not overcome abnormalities in supply and lack of coordination between the plans of production and supply. As a result, there have been instances of cost increases for reasons independent of the enterprises. In 1958, a factory

making men's leather accessories received raw materials at prices costing a total of 144,000 rubles more than expected, the Drevtekhdetal Factory paid 320,000 rubles more than expected, and chemical plant No. 5 — 140,000 rubles more.

Frequently, enterprises also find it necessary to employ various substitute materials that make production more expensive. As an example, we may cite the increase in the cost of plastics for phonograph records by 158,000 rubles due to the use of photo-offset rather than lithographed labels because of lack of funds for paper. Elimination of these and other apparently insignificant shortcomings in supply would make for a greater economy in social labor than is now the case.

The most important and decisive element in production is labor itself, i.e., the labor employed in processing the object of labor and converting it into the finished product.

In the cost of production, expenditures of living labor are reflected in the form of wages and supplements in that category.

This cost element is completely dependent upon the productivity of labor.

To increase labor productivity means to increase the output of goods per worker, and it means reduced expenditures of living labor per unit of output.

The growth of labor productivity is a decisive factor in cost reduction in socialist industry, just as savings of raw materials, other materials, fuel, reductions in unproductive expenditures, etc.

For purposes of planning the cost of production, an increase in labor productivity is regarded primarily as a factor in reducing the share of wages per unit of product, with a simultaneous increase in the average wage of the worker per unit of time. This is obtainable by raising the rate of increase in labor productivity above the rate of increase in wages.

In the network of local industries under the agency we are concerned with, wage expenditures in 1958 were 6 million rubles, or 4%, less than planned. This saving was achieved primarily by means of technological and organizational measures to mechanize heavy labor processes, improvement and simplification of the production processes, revision of temporary and outdated work quotas, superior organization of production, etc.

A number of enterprises have achieved particularly good results. The Lenemalyer Plant, for example, saved about 45,000 rubles in this sphere chiefly as the result of changes and improvements in the technological processes of production alone. Other good examples are the Elektroarmatura and porcelain plants where a revision of low quotas and mechanization of production made it possible to save 374,000 rubles per year.

Although good results were obtained for local industry as a whole, there were individual instances of unproductive losses due to supplementary wage payments, up to the level of average earnings, because of deviations from the normal conditions of work, etc.

A single sheet rolling mill alone had over-expenditures of 133,000 rubles in wages because of the use of higher piece rates for the rolling of double Alapaev billets and other kinds of billets.

The plan for increasing labor productivity in industry was fulfilled by 104.2%, and labor productivity was 110.2% of the 1957 level. The labor plan was not fulfilled at only one enterprise — the paint factory. To make this situation clearer, let us examine the relationship between labor productivity and wages at enterprises in local industry (Table 2).

Table 2

Average Wages and Average Output (in rubles)

Labor productivity and average wage	1957 (Results)	1958			1958 in % of 1957
		Plan	Results	Plan fulfillment in %	
Average output per worker	64,963	68,705	71,586	104.2	110.2
Average wages per worker	9,825	9,949	10,141	101.8	103.2

For the administration as a whole, the increase in labor productivity was greater than the increase in wages. In 1958, it was 2.3% higher relative to the plan, and 7% higher than in 1957. All enterprises assured a more rapid increase in labor productivity than the increase in wages, except for the rayon industrial combine of Vasilevsky Island where 59,800 rubles more were spent on wages than had been planned.

At first glance it would seem that the results were good. However, the potential for further increase in labor productivity is great. Such increases have to be sought along the line of introducing technologically justified quotas, better utilization of working time, equipment, etc.

The data on the fulfillment of the output quotas by piece workers in 1958 clearly characterizes the situation with respect to quota setting (see Table 3 on the following page).

The job before us is that of sharply reorganizing and bringing order into the organization of wages of workers and other categories of personnel. However, this work is still being performed poorly, as is indicated by a comparison of the data on the distribution of piece workers with respect to quota fulfillment during the past two years.

Table 3 shows that 80.8% of the piece workers fulfilled their quotas in 1957 by 150% and more, whereas in 1958 the figure was 80.3% of the total. Thus, there is a tendency for this category of workers to increase, whereas for the country as a whole a major job is under way in terms of adjusting quota setting and payments to labor. This means that in local industry work quotas are being consciously set too low so as to guarantee to the worker a wage that will meet the planned average wage. True, some work is being done to straighten this out, but it is being hindered by the lack of uniform job classification handbooks.

The manner in which production is distributed over a given period is a clear index of the available reserves for increases in labor productivity and cost reductions.

For the administration as a whole, in 1958 25 to 27% of each month's plan was carried out during the first ten days of that month, 31-34% during the second ten days of each

Table 3

Piece Workers Distributed According to Quota Fulfillment

Periods Compared	Piece workers who fulfilled their production quotas: Up to 100%	From 100 to 120%	From 120 to 150%	150% and more	Total number of piece workers	Average fulfillment (in %)
December, 1957						
Regional industry	5	161	373	3327	3866	223
City industry	46	879	2026	11307	14258	202
Total	51	1040	2399	14634	18124	207
Percentage in this category	0.3	5.7	13.2	80.8	100.0	—
December, 1958						
Regional industry	7	172	362	3224	3765	228.6
City industry	73	698	1776	12223	14771	205.9
Total	80	871	2138	15447	18536	210.7
Percentage in this category	0.4	4.7	11.6	83.3	100.0	—

month and 40-42% during the third ten day period. In the case of 14 plants this spread was even wider. More than one-half of the month's plan was carried out during the third ten days of the month at stamping plant No. 2, the metal bed plant No. 1, the trimming plant, etc., whereas little more than 15% of the month's plan was carried out during the first ten days. The causes lay not only in poor organization of production but in supply difficulties.

A major hidden reserve for reducing costs of production, particularly in local industry, is a reduction in shop and plant expenditures. The share of the latter in the cost of commodity production as a whole is 3%, whereas that of shop expenditures is 12.8%.

In the system of enterprises we are discussing as a whole, a relative economy in the categories just cited of 2.2 million rubles was achieved if the overfulfillment of the plan is considered in the reckoning, but in actuality there was an over-expenditure of 2.9 million rubles. The reason for the over-expenditure is given, in an explanatory memorandum, as being due to the overfulfillment of the gross production plan, the payment of bonuses for overfulfillment of the plan, unplanned expenditures for current maintenance due to greater wear, etc. The main reason for the high share, particularly of shop-wide expenditures, is due to the scattered nature of the production units.

Even the plan for 1958 envisaged expenditures in this field of 133.4 million rubles.

In struggling for a reduction of shop and plant expenditures, for increased labor productivity, etc., the Chief Administration was correct in making its decision to provide for the specialization of the various regional industrial combines and to build, in 1959-1965, new structures to house 6 regional industrial combines. Two of these will be available for use in 1959, and one in 1960.

Of the total over-expenditures under the categories of shop and general plant outlays, about half is represented by the latter.

Whereas the shop over-expenditures were explained by causes that apparently did not depend upon the work of the enterprise, in the latter case there is no valid justification.

We may cite, as examples, an increase of 175,000 rubles in postal, telegraph and office expenditures; the payment of 2,035,000 rubles in fines, forfeits, and the like; the failure to deliver a total of 390,000 rubles worth of commodities and other tangibles. Losses due to rejects were great, constituting a total 1,507,000 rubles in 1958. Nor has it been possible as yet to eliminate the fact that a number of products are manufactured at a loss. Thus far, the L-1 refrigerator is produced at a loss (the cost is 90 rubles and 10 kopecks higher than the selling price per unit), as well as the Vikhr vacuum cleaner, the water heater, and electric brush plus vacuum-cleaner combination, etc. Losses in the production of enameled kitchen sinks alone came to 720,800 rubles during the year.

The purpose of socialist production consists not only of manufacturing a given quantity of products in the necessary variety, but of doing so with minimum labor costs. Therefore, a reduction in costs of production is a most important source of socialist accumulation and a means of improving the quality of the work of an enterprise.

By putting a rigorous regime of economy into effect, the industry of the USSR has achieved important successes in cutting costs. Notable achievements have also been recorded in the local industry of Leningrad when measured both in absolute and relative terms.

In 1957, the plan for accumulation was carried out by 106.3%, and in 1958 by 105.6%, with total economies of 17,180,000 and 52,984,000 rubles, respectively. Of all the enterprises involved, the only ones that did not fulfill the planned reductions in costs of production were the regional industrial combine on Vasilevsky Island, the button factory, and the purchase and sales office.

However, with all these achievements, considerable further possibilities for cost reduction remain. The mobilization of these possibilities must be in the direction of eliminating losses due to unproductive expenditures and poor management. The management of local industry must seek more careful coordination between production and supply plans because failure to fulfill plans for material-technical supply results in inflated profits due to the use of raw materials of inferior quality, but this in turn impairs the quality of the product.

An important further area for reduction of costs is the introduction of new equipment, modernization of equipment, and improvement of the technology of production.

Costs are the major qualitative index of the functioning of an enterprise, and a cost plan is a generalized index of the entire technical-industrial financial plan of the enterprise. Therefore, assignments for a reduction in costs must be developed carefully and related to other branches of the economic plan.

Correct planning of costs is also of significance in connection with the fact that this is required by the law of value which is operative in socialist production.

Costs determine the level of profitability (yield) of production. The profitability of production means that the funds derived from the sale of products not only cover costs but also provide for a net income in addition.

Net income assumes two primary forms in the state sector of the economy: the net income of state enterprises and the centralized net income going to the state as such.

The net income of state enterprises represents the difference between the wholesale price charged by the enterprise and the cost. This portion of net income is accumulated at the enterprise and is utilized in accordance with the technical-industrial-financial plan. The magnitude of this portion of the net income will be completely dependent upon the level of costs under the circumstances of centralized setting of wholesale prices for the products of socialist industry.

In planning the magnitude of the net income of an enterprise, the state sets a rate of profit. In establishing the rate of profit, the state proceeds from the need to prevent excessive accumulation of monetary funds in the hands of the enterprise on the one hand, and on the other, the need to promote a strengthening of the principles of cost accounting and material incentives to the enterprise. The rate of profit is higher, the lower the cost, and vice versa.

In setting wholesale prices for products, the state provides for reimbursement of all expenditures in production and for a portion of the accumulation to go to expanded reproduction.

Thus, we have examined the interrelationship between cost and profit, and determined that the magnitude of profit is wholly dependent upon the cost of production. Cost of production and profit are two elements of price.

The second form of net income of socialist society, and the third element of price is the turnover tax.

True, some economists do not consider turnover tax to be a factor in price formation. This is, for example, the viewpoint of S. Ia. Kolosovskii and Iu. A. Rosenblium. (2) These authors believe that "its magnitude is determined by the planned price of the commodity minus the entire planned cost and the planned profit." (3)

It would follow, according to them, that the price of a commodity is established arbitrarily and that the turnover tax is determined merely as the difference between the price and the planned cost and the planned profit.

The authors do not negate the need for the turnover tax as a means of realizing a portion of the net income created in the branches producing means of production, but realized in prices of consumer goods. Consequently, the turnover tax is a part of the value of the commodity. It is employed by the socialist state in accordance with the requirements of the economic laws of socialism.

The turnover tax is a firmly fixed portion of the price of a commodity and is established either by a percentage mark-up over the price, or by the method of differences, or by adding a flat sum per unit of the commodity. By its nature it is a part of the net income of society. As a firmly fixed portion of the price of a commodity, the turnover tax is not, however, the major (fundamental) price-forming factor. The relationship between the turnover tax and profits over a term of years may serve as proof of this.

Table 4

Profits and Turnover Tax in Enterprises of Local Industry (as % of sales price)

Profits and turnover tax	Years							
	1954		1955		1956		1957	
	Plan	Results	Plan	Results	Plan	Results	Plan	Results
Turnover tax	16.8	16.0	16.5	16.3	15.1	15.0	19.2	19.2
Profits	24.0	27.0	28.5	31.0	33.8	35.0	43.3	44.3

Analysis of the data in this table shows that in the period from 1954 to 1957 profits of the enterprises under this administration increased by 17.3%, whereas there was virtually no increase in the share of the turnover tax. (4)

The level of commercial mark-ups or discounts is established in a manner similar to that by which the turnover tax is set. Commercial discounts are established by the State Planning Committee of the USSR as a definite percentage of the retail price, with due consideration for the average level of marketing costs for individual groups of commodities. However, the size of commercial discounts for products not having retail prices and mark-ups for the products of public eating places must have the approval of the Council of Ministers of the constituent republics.

The characteristics of the elements constituting price show that costs play the major role in the planning of prices. The price of goods can be determined only by a correct calculation of costs, and on this basis — of value. In turn, the presence of firmly fixed uniform prices for the means of production and for finished products makes it possible to describe the quality of the work of the given enterprise, and of its individual expenditures.

This is why the question of reducing costs is of major significance at enterprises of local industry, as in the national economy as a whole.

The reduction of costs in local industry may be followed in terms of its dynamics for a number of products (see Table 5 on the following page).

These data show that a steady drop in costs of production is occurring in local industry. It would follow that there is reason for posing the question of reducing the retail prices of certain products, i.e., that the reduction in

Table 5

Changes in the Costs of Various Products (in % of 1955)

Products	1955	1956	1957	1958
250 mm. slide rule (units)	100	92.7	92.5	89.4
Lined rubber winter boots (pairs)	100	92.3	84.3	—
Number 5 meat grinder (units)	100	86.6	68.6	50.0
Polished hockey skates for adults (pairs)	100	93.7	89.0	—
Knitting yarn (hanks)	100	86.0	79.5	—
"Airplane" toy (units)	100	89.2	84.2	—
Safety blades (thousands):				
"Neva"	100	84.2	80.0	—
"Baltika"	100	84.0	79.8	—

costs should be reason for a reduction in prices. However, despite the substantial reduction in the cost of these products, there has been no drop in their retail prices. This is because changes in prices are not up to the local authorities.

The problem of changing wholesale prices for industrial and agricultural products, and retail prices for food and industrial commodities, is decided by the USSR Council of Ministers both in toto and for individual groups of products. It is therefore wholly understandable that not every instance of cost reduction will result in a corresponding reduction in prices.

The profits gained as a result of cost reduction are accumulated and are currently employed by the socialist state for the needs of expanded reproduction and for satisfying the growing material and cultural requirements of the working people in accordance with the objectives of building communism.

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Literature Cited

(1) The sources for these data and for those which follow are the plans and annual reports of the Chief Administration of Local Industry of the Leningrad City Executive Committee.

(2) S. Ia. Kolosovskii and Iu. A. Rozenblium, The Turnover Tax, Kharkov University Press, 1958.

(3) Ibid., p. 8.

(4) The turnover tax could have increased only for two reasons: changes in the assortment of the products or an increase in the tax rate.

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V. Lazarev and N. Merkulov:

Reserves Available for Development of the Fuel Industry

The fuel industry is one of the leading branches of heavy industry. A rapid increase in fuel output is a necessary condition for high rates of development of the national economy as a whole. The major trends in technological progress — electrification, mechanization and the extension of chemical processes — are inextricably involved with the increase in fuel consumption.

The target figures for the development of the USSR economy from 1959 to 1965 envisage an increase in the extraction and production of the major forms of fuel as follows: petroleum — to 230-240 million tons, or an increase of more than 100% over 1958; gas — to 150 billion cu. m. or five-fold; coal — to 600-612 million tons, or to a level from 21% to 23% higher than in 1958. The structure of the country's fuel supply will undergo fundamental changes during the Seven-Year Plan. In 1965, the share of the types of fuel of higher heat capacity and cheaper cost — petroleum and gas — will be more than 51% of the total output of fuel, as against 31% at the present time.

The rapid rates of development of the production of all types of fuel, and, simultaneously, the significant change in the structure of the fuel supply are of major significance for successful fulfillment of the grandiose objectives of the Seven-Year Plan. When compared to coal, gas and petroleum have a higher heat capacity, and their cost is substantially lower when converted to conventional fuel units; petroleum is less than a quarter as expensive, and natural gas only one-seventeenth as expensive as coal. An increase in the share of petroleum and gas, the most economical fuels, in the fuel supply of the country, will represent a significant increase in the productivity of the labor of society.

In 1958, the production of all types of fuel attained (when recalculated in conventional units) 630 million tons. This is almost fourteen times as much as was produced in 1913. The mining of coal rose seventeen-fold during this period, petroleum recovery more than twelve-fold and peat extraction by thirty-one times. The gas industry, which was almost non-existent before the revolution, has been growing at extraordinary rates in the last few years. The recovery of natural gas (including by-product gas obtained at oil fields) rose 50% in the single year from 1956 to 1957, and in 1958 another 50%.

Let us compare the structure of the fuel supply in the pre-war year of 1940 with that in a number of post-war years.

Fuel Production by Type
As percentage of total (recalculated in conventional fuel units of 7000 calories)

Year	Total	Coal	Petroleum	Natural gas (including by-product)	Peat	Shale	Firewood
1940	100.0	59.1	18.7	1.9	5.7	0.3	14.3
1945	100.0	62.2	15.0	2.3	4.9	0.2	15.4
1950	100.0	66.1	17.4	2.3	4.8	0.4	9.0
1955	100.0	64.8	21.1	2.4	4.3	0.7	6.7
1958	100.0	59.6	25.7	5.4	3.4	0.7	5.2

As may be seen from the data presented in the table, the share of coal in the fuel supply is still very large, comprising about 60% of total fuel production. However, the last few years have witnessed a distinct tendency to reduce the share of coal in the fuel supply. Whereas it comprised 66.1% in 1950, in 1955 the share of coal was 64.8%, and in 1958 59.6% of the total. Moreover, the share of petroleum, and particularly of gas, in fuel production grew considerably in 1958. The share of natural gas (including petroleum by-product gas) and of petroleum in the total fuel output of the USSR was 19.7% in 1950, 23.5% in 1955, and 31.1% in 1958. The rapid reduction in utilization of firewood was also a positive factor. In 1913, firewood comprised more than 19% of all sources of fuel (recalculated in conventional units), whereas in 1940 it was 14.3%, and in 1958 the share of firewood was only 5.2%.

Fundamental changes occurred during the years of Soviet rule in the geography of the country's fuel industries. As the result of large-scale efforts to study natural resources, new coal and petroleum-bearing regions were found, along with new deposits of natural gas formations. The irrational concentration of the fuel-extracting industry in the south, which we inherited from Tsarist Russia, has been changed. Strip mining has been the technique employed to establish new major centers: of coal — at Kuzbass, Karaganda, and Pechora, plus some others; of petroleum — a number of formations in the Bashkir ASSR, in Kuibyshev oblast, in the Tatar ASSR, and other regions; of gas — Saratov, Stavropol and other natural gas formations. Whereas the Donbass produced 87% of the coal in 1913, today its share has dropped to 37%. Likewise, the share of the Transcaucasian districts in petroleum

production has dropped from 75% to 15%. Thus, the center of gravity of the fuel industry has shifted from the south of the country to its eastern districts.

The change in the structure of the fuel supply is intimately related to the general technological progress of the economy. Thus, the reduction in the share of coal reflects, in part, major changes occurring in the fuel consumption of railway transportation, which continues to be the largest coal consumer. In 1957 the manufacture of steam locomotives was ended, and diesel and electric traction is being introduced on the railways.

In order to attain the level of coal output set in the Seven-Year Plan it will be necessary to carry out a major program of construction of coal-industry enterprises at the newly-discovered coal deposits, and to increase the production capacities in districts in which coal mining is already developed. However, growth in coal production is possible not only as a result of the construction of new mines and cuts, but also as a result of the available internal production possibilities. Today, existing coal industry enterprises possess possibilities for increasing output that are quite significant. Let us examine some of these possibilities, the utilization of which will make it possible to substantially increase the output of coal and to improve the quality indices for the functioning of enterprises in the coal industry.

In 1957 the target for coal production was exceeded by 2%, and the country gained about 8 million tons of fuel in excess of the plan. The 1958 coal target was also exceeded by 2%. The plan for the current year of 1959 is being successfully carried out. However, along with mines that successfully meet their targets, there are those that do not fulfill their plans. Calculations show that if all the mines had carried out their plans in 1958, the country would have obtained no less than 15 million tons of additional coal. The fundamental causes for the failure to fulfill target objectives are failure to prepare the working face, inadequate labor supply for coal cutting, mechanical breakdowns, geological interruptions in veins, and the absence of reserve veins readied for exploitation. All this naturally influences labor productivity. Despite the fact that the average monthly production of coal per worker in the coal industry has risen in recent years from 30.6 tons (1940) to 40 tons (1958), the level obtained could be considerably higher if not for the shortcomings in the organization of production and of labor that exist at many mines.

One of the specific features of the production process in the coal mining industry is the constant shifting of the work station as the mine field is worked out. Therefore, a correct organization of production and of labor is of exceptional importance here. At the present time, and at the existing level of coal mining and the levels of mechanization obtained for various types of operations, the most progressive type of work is the cyclic form of organization — the working of long walls by cycle schedules. A cycle is the totality of operations and processes required to extract the coal, each of these operations being performed in a specific sequence from one cut taken into the vein to the next. The organization of work in accordance with a cyclic schedule results in increasing the production of coal and the productivity of the miner's labor. As a result of introduction of cyclic organization of production, a given rhythm is achieved in coal production, losses of working time are substantially diminished, machines and mechanisms are better utilized, there is an increase in the intensity of coal production, and a reduction in the possibility of breakdowns.

The grouping below testifies to the fact that the productivity of labor per shift of workers engaged in removing the coal from stopes converted to cyclic schedules is considerably higher than the average for all stopes currently in operation. Labor productivity is higher yet at stopes where the established standards for cycles are carried out.

Labor Productivity Per Shift in Coal Removal During the First Quarter of 1959, in kg.

	All stopes in operation	Stopes on cycle schedules	Stopes where cycle schedules are fulfilled
Donbass	3559	3959	4491
Kuzbass	5462	6403	7764
Pechora fields	4966	5638	6313
East Siberian fields	5717	6401	7324

Labor productivity is above the general level at all stopes converted to cyclic schedules. It is particularly high in stopes where the cycle standards are maintained. In the Donbass, labor productivity in coal removal in stopes that adhere to the cycle schedules is 26% higher than for all stopes in operation, whereas at Kuzbass it is 42% higher and at Pechora it is 27% higher.

The coal industry, which prior to the revolution was one of the most backward in its technical aspects, has become an advanced, highly-mechanized branch of industry, equipped with modern machines during the years of Soviet rule. The extensive and ever-increasing introduction of machines and mechanisms has considerably lightened the labor of the miners and rendered it more productive.

The table presented at the top of the following page presents the increase in the number of machines in the coal industry of the USSR.

The number of coal mining combines in the mines in 1958 was nearly 155 times as high as in 1913, (1) the number of belt conveyors 4 times as high, the number of electric locomotives more than 8 times as high. The equipment of mines with leading combines, drilling and breaking machines and scraper conveyors only began in the post-war years.

At the present time, the cutting, breaking, and delivery of coal at the face, the loading of coal and rock, and the loading of coal into railway freight cars, are completely mechanized. In the scale of employment of coal-mining machines, the USSR has advanced far beyond any other country. However, the situation is quite different in terms of the picking and loading of coal at the mines. The June Plenum of the CC CPSU (1959) noted that the level of mechanization in this field is still low. The level of mechanization in the loading of coal at the face in flat and

Machinery in the Coal Industry
(at end of year; units)

	1940	1950	1955	1957	1958
Coal-mining combines	24	688	2145	3006	3713
Digging combines	—	19	194	290	358
Heavy drills	3421	4815	3583	4155	4402
Drilling and breaking machines	—	502	709	903	1071
Rock loading machines	36	1424	3862	5234	5637
Scraper conveyors	—	18996	28650	38115	42475
Belt conveyors	2920	6725	9437	11325	12365
Electric locomotives	1841	7253	11312	13626	15002

sloping veins was only 40.1% of the total of this kind of work in 1958, and mechanized loading of coal and rock during the major horizontal operations in preparing a vein for exploitation was only 54.5% of the total volume of this work.

The resolution of the June Plenum of the CC CPSU pointed to the need for particularly extensive employment of such progressive technological processes and improvements as underground mining of veins by means of coal-recovering complexes, combines, and other equipment at the coal base, the strip method of coal recovery, chiefly by systems not requiring special transportation, the hydraulic method of recovering and transporting coal, and the most efficient methods of dressing and briquetting the coal.

The successes of the coal industry would have been even greater if the available machinery and mechanisms were utilized more fully than was actually the case.

The utilization of machines and mechanisms in the period from 1955 to 1957 is described by the following table.

Number of Machines in Operation as Percent of Total Number of Machines at End of Year

	1955	1956	1957
Coal combines	66	58	57
Heavy drilling machines	66	69	62
Drift-advancing machines	62	65	61
Drilling and breaking machines	69	73	77
Rock loaders	71	68	66
Scraping conveyors	83	82	81
Belt conveyors	87	88	87
Electric locomotives	77	79	79

As these figures indicate, the machines and mechanisms available in coal mines are not completely utilized. Sometimes, the number of machines standing idle exceeded the number manufactured in a given year. Thus, in 1956, 793 coal combines were manufactured, whereas at the end of that year 1099 of these machines were standing idle at the mines. In 1957 909 coal combines were produced and there were 1286 not operating at the end of the year. 2147 mine locomotives were manufactured in 1956, and 2744 in 1957. However, at the end of 1956 2534 were not in operation, and at the end of 1957 2853 were not in use.

The designed output capacities of coal mines that go into operation are reached slowly.

The strip mining of coal has developed substantially in the USSR, as is evident from the following data:

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	1913	1940	1950	1955	1957	1958
Strip mining output of coal, millions of tons	0.2	6.3	27.1	65.7	90.1	98.6
Share of same in total coal output, in %	0.6	4.1	10.4	16.8	19.4	19.9

The labor required for the strip mining of coal and the cost of coal produced in this way is only a fraction of that involved in ordinary mined coal. The use of strip mining enjoys very good prospects in the eastern part of our

country. There, the coal strata are not very deep. The thermal power stations and industrial enterprises which it is planned to build in the east will be supplied with cheap coal.

The development of coal mining by the hydraulic method will result in considerable savings for the economy.

During the Seven-Year Plan the development of the fuel base for the economy of the USSR will occur under conditions of priority increases in the production of petroleum and natural gas. A considerable expansion in the employment of petroleum and gas as industrial and power fuels and as raw materials for the chemical industry is envisaged. As compared to 1958, the production of petroleum in 1965 will have more than doubled, and gas output will have increased more than five-fold. Utilization of petroleum products and gas as fuel and for production purposes in industry will strengthen the growth of the social productivity of labor and will result in a reduction in the production costs of the national economy, particularly in industries requiring much fuel and power.

The major source of increase in petroleum production during the seven-year period will be extraction in new deposit areas. However, a highly significant role in increasing the production of petroleum will be played by improvements in the technology and methods of extraction, and also by the utilization of resources available within the petroleum industry as presently developed.

The following figures will illustrate the high average annual rates of growth of the petroleum industry in the post-war years. Whereas during the ten years from 1931 to 1940 the increase in petroleum extraction was 12.6 million tons, petroleum production from 1946 to 1955 grew by 51.4 million tons, and during the past 3 years, from 1956 to 1958, by 42.4 million tons. (2) One of the most important factors in the increase in the production of petroleum and gas in the post-war years has been the increase in prospective resources. Moreover, improvements in the exploitation of petroleum formations, increases in the rate of petroleum extraction, and more complete utilization of prospected resources have been of great significance.

In the pre-war years, it was common for about half of the available resources to remain in the petroleum formations by the time exploitation was no longer possible. In order to develop output it was necessary to start to exploit new fuel deposits and to make additional capital investments.

The post-war period is typified by more complete utilization of petroleum formations. This became possible as the result of the employment of methods of artificial maintenance of stratum pressure with the aid of flooding beneath and above the cap. In addition to the pumping of water into the stratum, other methods have recently been introduced for purposes of increasing the rate of petroleum recovery, among which the most important are hydraulic expansion of the stratum, cumulative perforation, and sulfuric acid well-processing. In 1958, the operation of petroleum formations with artificial maintenance of pressure through water drive was 141.6 million cu. m. as against 8-9 million cu. m. in 1950, and the employment of hydraulic expansion of strata in naturally and artificially driven wells to increase the permeability of the zones adjacent thereto increased from 2 well-operations in 1953 to 2713 well-operations in 1958.

Thanks to the employment of the most modern methods of increasing the rate of petroleum recovery, there has been a considerable increase in the share of petroleum extracted by the most economical, gusher method.

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Petroleum Extraction by Methods of Recovery (in percentage)

Years	Total oil production	Including			
		by pump	by compressor	gusher	other methods
1940	100	38.4	37.2	23.3	1.1
1950	100	44.7	21.1	32.5	1.7
1955	100	34.0	6.5	58.3	1.2
1956	100	29.6	5.0	64.5	0.9
1957	100	26.5	3.9	69.0	0.6
1958	100	25.6	3.4	70.4	0.6

In the current Seven-Year Plan it is intended to expand the employment of methods of secondary exploitation of oil wells, and this will also make it possible to increase the annual growth in petroleum extraction.

The achievement of the average annual increase in petroleum and gas extraction envisaged in the target figures for the development of the USSR national economy in 1959-1965 will depend to a considerable degree on the rates and volumes of drilling, and on the extent to which this is improved. At the present time, the main method of drilling oil wells is turbine drilling. In 1956 turbine drilling constituted more than 85% of the total volume of drilling. From year to year, the speed of drilling for purposes of operation and prospecting is increasing, and work is under way to introduce dual-string and multiple-string drilling. The amount of drilling of small-diameter wells is increasing, and this makes it possible to reduce the use of metal, cement, chemical reactants and lumber by nearly one half and to reduce costs per meter drilled by 30-40%. (See table shown on the top of the following page.)

However, there are considerable possibilities for improving the employment of drilling equipment. Thus, in 1958 only 68.6% of calendar time was utilized in the exploitation drilling process, and 31.4% of the time was not employed for various reasons. Calendar time is made even poorer use of in prospecting drilling. A better utilization of calendar time in the operation of drilling equipment and reduction in non-productive shutdowns will make it possible to increase drilling rates and the volume of oil well drilling performed.

An important place in the country's fuel balance in 1965 will be occupied by the production of gas — the most heat-productive and convenient of the fuels, and at the same time a valuable raw material for the chemical industry.

Rate of Drilling of Petroleum and Gas Wells per Rig per Month (m)

	1940	1950	1955	1956	1957	1958
Exploitation Drilling	412	629	893	940	1082	1084
Prospecting Drilling	233	209	306	342	401	417

Pre-revolutionary Russia had no gas industry of its own. Little attention was given to the development of the gas industry until 1945. The gas industry, as a major branch of socialist industry, is a creation of the last few years. Here are data on its development:

Growth of Gas Extraction and Production (Billion cu. m.)

Years		Years	
1928	0.33	1956	13.68
1940	3.39	1957	20.23
1945	3.41	1958	29.85

One of the most important reasons for the slow development of the gas industry in the pre-war period was the inadequate scope of geological work for gas prospecting. In recent years, the volume of work done in prospecting for gas has increased considerably; major gas formations have been discovered, and data confirming the existence of enormous potential resources have been reported.

The Soviet Union's largest gas deposits have been prospected in Stavropol territory, and in the Stalingrad, Saratov, Kuibyshev, and Tyumen oblasts, as well as in the Yakut and Komi ASSRs, and on the territory of the Ukraine and Uzbekistan.

The progress reported in prospecting for natural gas has made it possible to accelerate its production and utilization for urban services and household purposes to an enormous degree, and in the future this will be true in terms of industrial uses.

The use of gas as a fuel in industry makes possible a considerable increase in the yield of furnaces and assemblies, and an improvement in the quality of output and the workers' conditions of labor. Thus, for example, conversion of open-hearth furnaces now in operation to gas would make it possible to increase the melting of steel. In the cement industry the conversion of rotary kilns from solid fuel to natural gas will improve the quality of the cement. In the metal manufacturing industry the use of gas will make it possible to increase the melting of steel. In the cement industry the conversion of rotary kilns from solid fuel to natural gas will improve the quality of the cement. In the metal manufacturing industry the use of gas will make it possible to introduce new types of highly productive furnaces, to greatly improve the heating and heat treatment of the metal. Of tremendous benefit to the national economy will be the large-scale utilization of natural gas as a raw material in the chemical industry for the manufacture of fertilizer, synthetic rubber, carbon black, formaldehyde, sulfuric acid, acetylene, ethylene, ethyl alcohol, and many other products. The increase in the extraction and production of gas will make it possible to reduce costs of production at enterprises which had hitherto used other types of fuel and which will be converted to gas, and to free thousands of people now occupied in the mining and transportation of coal.

An important means of increasing gas production is an improvement in the utilization of by-product gas, i.e., gas recovered from oil wells simultaneously with the oil. A considerable portion of this gas is burned in waste-gas jets or emitted into the air. Thus, for example, in 1957 about 49% of the by-product gas was disposed of in this manner, and in 1958 44%. However, by-product gas is a gas of high-heat capacity and a valuable raw material for the chemicals industry.

The carrying out of the objectives posed by the 21st Congress of the CPSU for the fuel industry requires an acceleration of the rates of technological progress, an improvement in the organization of production, the discovery and utilization of existing production reserves in the coal, petroleum, gas and other branches of the fuel industry. It is the duty of persons in the field of statistics to assist this development in every possible way. A broad field for analysis of the possibilities for the further development of the fuel industry is opened by the fuel-and-power consumption balance sheets, the compilation of which is now being undertaken by the statistical agencies. Similar opportunities are offered by analysis of data on labor productivity, costs of production, and the technological and economic indices broken down by groups of enterprises, as well as by other statistical materials being collected and elaborated by the statistical agencies.

Footnotes

(1) Editor's note: the original mistakenly cites the year 1940 here, but 1913 is clearly intended.

(2) Editor's note: the original cites 42.4 thousand tons, apparently a typographical error.

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E. Budagova:

The Problem of the Withering Away of the Collective Farmer's Personal Farm Plot

The steady development of the productive forces of socialist society provides the foundation for a gradual increase in the level of socialization of collective farm production, and approximation of the cooperative property of the collective farms to general public property.

One of the characteristic aspects of this process is the withering away of the personal farm plot of the collective farmers, which is gradually losing its significance.

As indicated at the 21st Congress of the CPSU, the communal production carried out on the collective farms is coming ever increasingly to embrace all the branches of agriculture. As a result, the collective farmers' requirements not only for grain, but for milk, meat, butter, potatoes, vegetables, and fruits are being ever increasingly satisfied not out of their personal garden plots, where yield is low in terms of the labor expended, but out of the produce of the more economical common collective farm endeavors.

If we examine the question of the withering away of the personal garden plot of the collective farmers, it is necessary in the first place to observe that this phenomenon did not come into being and does not exist independently of the cooperative enterprise, but in intimate relation with and alongside it. The personal garden farming of the collective farmers, which is conducted on land assigned to the collective farms, is not a private enterprise. It is a completely new economic phenomenon arising out of the socialist reorganization of the small-peasant village. This personal enterprise is an enterprise of a special type existing on the basis of the agricultural cooperative as its foundation.

As opposed to the individual peasant economy, which constitutes the main source of means of existence for the peasantry, the personal garden plot is not the main source of existence for the collective farm household. The main source of existence for the collective farmers is the communal operation conducted by the collective farm.

Whereas individual small-scale peasant farming serves as a source of the constant birth and development of capitalism, the personal garden plot of the collective farmers cannot under any conditions become a capitalist enterprise, inasmuch as, in the first place, there is no private ownership of the means of production and exploitation of man by man under socialism, and in the second place, the private plot of the collective farmers exists in association with the communal operations of the collective farm and occupies a subordinate position with respect to it.

The personal garden plot of the collective farmer is regarded by the Communist Party and the Soviet government as an economic necessity existing at a given stage in the development of collective farm production, and as one of the most important characteristics of the agricultural cooperative.

In its guidance of the process of collectivization of the peasantry, and the construction of socialist forms of economy in the countryside, the Communist Party of the Soviet Union proceeded from the need for a proper combination of the personal interests of those who were but yesterday private farmers, small property owners, who had centuries of conditioning in working as individuals, with the interests of society, the interests of the given collective and of the social order as a whole, without which the free existence and development of the personality is unthinkable.

The small peasant was tied for ages to his tiny piece of land, to his enterprise, and was accustomed to concern himself only with his personal property. Was it possible for the party, in developing the mass-scale collective-farming movement, to disregard the individualist psychology of the private peasant? No, it could not do so.

"To demand that the peasants entering the cooperative," we read in the resolutions of the 16th Congress of the party, "immediately renounce all individualistic customs and interests, renounce the possibility of conducting their personal farming in addition to the common farming operations (possession of a cow, sheep, fowl, a garden plot), and refrain from utilization of outside earnings, etc., means to forget the abc's of Marxism-Leninism." (1)

The triumph of the collective system opened the road to a prosperous and cultured life for the working peasantry. It created the objective conditions for yesterday's individual peasants to break with their private-property-owner psychology. However, the individualistic habits and interests that had developed in the peasants over the centuries could not disappear immediately after their entry into collective farms. This circumstance, of course, could not help but create the need for preserving for a given period, within the framework of the collective farms, of certain transformed elements of private enterprise, constituting the personal farm plot of the collective farm household.

However, the most important reason for the existence of personal farming operations of the collective farmers lies in the fact that the collective farms cannot, at a given stage in their development, satisfy all the requirements of their members for agricultural products out of the farm's communal operations alone. Therefore, the personal plot of the collective farm family, operating within clearly-defined limits, is called upon to serve, during this period, as a source of supplementary income necessary for the satisfaction of the growing requirements of the collective-farm family.

Lying at the base of the organization of the collective-farm cooperative is the principle of combining the social and personal interests of the collective farmers in such a way as to assure preferential growth, and perfection of, the communal economy of the collective farm, and a continuous increase in incomes obtained by collective farmers from the communal operation. Therefore, in their development, the communal operations of the collective farms show a tendency toward an ever increasing satisfaction of the growing needs of the collective farmers and thus make the farm plots increasingly superfluous.

For example, the production of grain in the collective

farms is presently almost entirely concentrated in communal operations. The sown area under grains in the private plots of the collective farmers constituted in 1950 1.9%, in 1954 1.4%, in 1955 1.3% and in 1956 1.1% of the total sown area under grains in the country. (2) Therefore, the collective farmers of the grain districts meet their grain requirements almost exclusively out of the communally-performed operations.

The collective farmers of cooperatives specializing in the production of industrial crops receive money for the labor-day units they have earned, and use this to buy grain either directly from the state or from their collective farms, to which the government supplies grain in adequate quantity in the form of counter-deliveries for the products sold.

The situation with respect to vegetables, potatoes and certain other farm products is different. Today, the majority of collective farmers obtain the bulk of these products from their own garden plots.

The share of the garden plots is particularly significant in the production of potatoes and vegetables in collective farms where these crops are either not raised at all by the communal enterprise or are raised on only a small scale. Thus, for example, in Rostov oblast, where the production of potatoes in the collectives has not yet gotten under way and the general level of harvest of this crop is insignificant, the bulk of the potatoes raised in the oblast are grown on the farmers' personal plots. For example, in 1953 the collective farmers obtained 98.26%, and in 1958 96.6% of the potatoes they consumed from their own garden plots.

The situation is somewhat different with respect to vegetables and melons. In 1953 the collective farmers obtained 83.6%, and in 1958 85.8% of these crops from their personal plots. On the whole, in the years 1953-1958 the share of the garden plots in providing the collective farmers with these products remained and continues to remain considerable, a fact that cannot be left out of consideration in evaluating the role of the garden plots as a supplementary source of means of existence for the collective farmers at the present time.

The same situation exists insofar as sources of supply of livestock products to the collective farmers are concerned. The communal operations of the collective farms are not yet capable of adequately satisfying the collective farmers' needs for these products, and the collective farmers do not always obtain enough money in payment for their labor-day units to buy them on the side. Moreover, organized trade in these products has not yet been established in rural areas.

In Rostov oblast, for example, where the collective farms raise chiefly grain and livestock, a completely inadequate allocation of milk, meat, butter, and other livestock products is made to the members in payment for their labor-day units. Nor is there an organized collective-farm or cooperative trade in these products in the village. As a consequence, a considerable proportion of the productive cattle, particularly milk cows, still remains in the hands of the collective farmers.

The same situation existed until recently in the country at large. Thus, as of October 1, 1956, collective farmers had 41.7% of the total number of cows, and the collective farms had 37.1%. (3)

Of course, if the communal operations of the collective farms were sufficiently developed to permit the collective farmers to completely satisfy their needs out of the products of communal livestock raising, receiving the things they need either in exchange for their labor-days earned, or through an extensive rural system of stores, there would be no need for productive cattle to be retained in their personal possession.

The communal operations of the collective farm today also do not constitute the major source for satisfying the collective farmers' needs for products such as fowl, eggs and fruits. The private plots will not lose their significance for the collective farmers so long as a system of selling all the products the collective-farm family needs is not organized in the villages, in addition to developing the communal operations and increasing the collective farmers' monetary incomes. Only an extensive system of rural trade can demonstrate to the collective farmers that it is much more profitable for them to meet their needs not out of the expensive and low-yield farm plot, but out of the products of the communal operations conducted with minimum outlays of labor and resources. All this will make it possible to increase the collective farmers' incentives to develop the communal enterprise and to take a decisive step forward toward converting it into the sole source of meeting the farmers' needs.

The need to retain the farm plots is explained not only by the fact that the communal operations of the collective farms are not yet in a position to satisfy the growing and various needs of the collective farmers for various specific forms of agricultural products. It is also dictated by the fact that all the incomes of the collective farmers in money and kind, obtained by them out of the social economy of the collective farms, are frequently still inadequate for the satisfaction of the growing needs of the collective farm family. Under these conditions, the farm plot is a necessary source of supplementary income both in kind and in money.

In order to satisfy, among other things, his needs for clothing, footwear, furniture and other consumer goods produced outside the collective farm, the collective farmer must have money. If the collective farmers do not receive enough money from the communal operations, they are compelled to seek other sources of income. The most important source of such additional income is undoubtedly the garden plot.

The total monetary expenditures of the collective farmers on consumer goods usually exceed the monetary incomes they receive from the communal operations of the collective farms both in the form of monetary payment for their labor and in the form of money acquired from the sale of excess products obtained on the basis of labor-days worked. Thus, in 1957 each hundred collective farm families in Rostov oblast bought commodities equal to a total of 527,294.5 rubles, whereas the monetary incomes of these families from the communal operations of the collective farms came to 433,880 rubles.

Thus, the need for the personal farm plot derives not only from the fact that the communal operations are incapable of satisfying all the collective farmers' requirements for certain specific products, but also from the fact that the total amount of income from these operations of the collective farm at the present stage in the development of the collective farm system is insufficient to satisfy the growing needs of the collective farm family. From this we derive both the need to maintain the garden plot and the fact that there is a direct reason for the collective farmer to be concerned with developing and strengthening it.

However, the personal garden plot serves not only as a source of extra income in money and kind for the collective farmer, but also as an additional source of marketed agricultural products, which pass through commodity circulation (chiefly through procurements and the collective-farm market) into exchange for industrial products. Thus the marketed production of the personal garden plot of the collective farmers of the country constituted 25% of the

nation's total marketed production of meat and animal fats of all kinds in 1956, including 23% of the pork, whereas they provided 20% of the milk, and 11% of the wool; in 1957, the corresponding figures were 22%, 21%, 17%, and 12% of the total marketed production. (4)

In the gross volume of Soviet internal trade in farm products, a large percentage is accounted for by collective-farm markets. For example, in Rostov-on-Don, the share of the collective-farm markets in the gross retail trade of such products as meat and fowl was 73.6% in 1956 and 67.8% in 1957; it was 85.4% and 80.9% for fruits of all kinds and berries; 83.2% and 79.4% for vegetables; 82.7% and 74% for eggs; and 43.7% and 55% for vegetable oils. Moreover, the bulk of the farm products sold in the collective farm markets were the products not of the collective farms, but of the collective farmers.

Sale of Agricultural Products by Collective Farms and Collective Farmers in the Markets of the City of Rostov-on-Don (in per cent of total)

	1956		1958	
	Collective farms	Collective farmers	Collective farms	Collective farmers
Meat	2.05	97.05	1.65	98.35
Eggs	9.26	90.74	13.38	86.62
Vegetable oils	13.88	86.12	10.19	89.91
Potatoes	1.69	98.31	0.93	99.07
Melons	38.29	61.71	22.59	77.41

If we take into consideration the fact that the bulk of these products are obtained by the collective farmers from their own garden plots, it becomes clear that the bulk of the meat, eggs, butter, potatoes and melons purchased by people in the collective-farm markets of Rostov-on-Don have come from the personal enterprises of the collective farmers.

The personal enterprises of the collective farmers are necessary, inasmuch as they are needed as a source of additional income for the satisfaction of the growing needs of the collective farm household, which cannot as yet be completely met from the communal operations of the collective farms. Under the conditions of a commodity economy and the collective-farm market, this may develop in two directions — either in the direction of the direct satisfaction of the personal needs of the collective-farm family through products it has raised itself, or in the direction of increasing the monetary income of the collective farm family by the sale of its products on the collective-farm market. In the former case, the subsidiary enterprise exhibits a natural, and in the second case a commodity character.

The collective farmers in districts which are a substantial distance from major markets refrain from raising products on their subsidiary plots requiring sale on the market, inasmuch as this sale involves large expenditures. They usually raise only those products which they can consume themselves without converting them into commodities. The subsidiary plots in these collective farms are chiefly of a subsistence and natural character. In Rostov oblast one finds these farms to be typical among the collective farmers of the Dubovskii Zimovnikovskii, Proletarskii and certain other regions. With diminishing distance to markets or improvement in conditions for haulage of products in small volume, there appears among the collective farmers, in addition to the tendency to satisfy their own requirements by their own products, a tendency to raise products for the market so as to purchase the commodities they need with the money thus earned. Such subsidiary enterprises bear a dual natural-and-commodity character. Their primary economic emphasis depends on which of these tendencies is the dominant one.

The closer collective farms are to urban centers whose population exhibits a growing demand for agricultural produce, the stronger is the tendency to produce products for sale on the market. The subsidiary enterprises of the collective farmers of the suburban collective farms now manifest a distinctively commodity nature. This is due not only to the fact that the collective farmers of these farms can deliver their products to the nearest market without any great outlay of funds and labor, but also to the fact that they can purchase the commodities they need in the cities with the money thus obtained. Thus, for example, the subsidiary plots of the majority of the collective farms of Miasnikovskii region in Rostov oblast, which is immediately adjacent (18-20 km) to the city of Rostov-on-Don, bear a distinctively commodity-producing character. The bulk of the products produced in these garden plots flow to the urban market.

The commodity nature of the subsidiary enterprises of the collective farmers depends not only on the ease with which their products can be sold on the market, but on the demand for various products produced by the subsidiary plots.

The collective farmers' garden plots may gradually lose their natural character and acquire a commodity-producing character if the market presents a steady and stable demand for specific products. This demand depends primarily on the needs and the purchasing power of the population, on the quantity and the time of arrival in the channels of Soviet trade of products of government enterprises, cooperatives, and collective farms. It is this last circumstance that essentially explains the fact that the subsidiary plots which are most distinctively commodity-producing in nature usually produce primarily those items which are inadequately produced and sold through organized channels.

The most unorganized sellers of farm products in the collective farm markets are the collective farmers selling the products of their personal enterprises. They are least subject to the organizing influence of planning and reveal a high degree of flexibility in the sense of rapid adaptation to market demand.

At times, market conditions make it possible for collective farmers to sell their products at excessive prices and induce unhealthy, speculative tendencies in them. This

phenomenon occurs with particular frequency where products are raised that are not offered in adequate quantity in state and cooperative trade.

The greater the demand for these products, and the smaller their supply in the organized market, the greater the objective conditions for the subsidiary enterprises taking on a speculative character. By taking advantage of the fact that production of certain commodities has been limited and that the demand for them is high, collective farmers at times skyrocket the prices for the products of their own enterprises.

Although the operation of the law of value on the collective-farm market is limited by planned regulation on the part of state and cooperative trade, it is nonetheless not completely free of spontaneity. The unorganized character of the collective-farm market is manifest in the first place in the fact that prices here are not set in advance through a system of planning, but come into being more or less freely as a result of the changing relationship between supply and demand.

The high prices on the collective-farm market, reflecting the growing demand for various products, impel the collective farmers to produce these particular products on their subsidiary plots. However, since the total volume of products offered on the market from these subsidiary plots is not great, the personal enterprises cannot significantly influence either the relationship between supply and demand, or the prices on the collective-farm market.

However, from this it follows that all regulation of the unorganized market must begin not with the establishment of fixed prices, which is rejected with full justification by the economic policy of the socialist state, but by changing the relationship between supply and demand which determines price levels on the collective-farm markets.

The most important means for changing the relationship between the constantly increasing demand and supply of agricultural products on the collective-farm markets is, in the final analysis, a powerful growth in production by the collective and state farms.

Only through a constant increase in the output of the collective and state farms is it possible, by means of a gradual elimination of the role of subsidiary enterprises of the collective farmers in commercial circulation, to overcome their commodity-producing nature. The overcoming of the commodity-producing nature of the subsidiary enterprise, which will occur on the basis of an all-round development of socialist agricultural production and the further strengthening of the communal operations of the collective farms, will be one of the most important reasons for the fact that the personal subsidiary enterprise of the collective-farm household will eventually lose its significance.

The more rapidly the communal operations of the collective farms are developed, the more distinct is the trend toward the withering away of the personal subsidiary enterprises of the collective farmers. It is this tendency that provides the basis for concluding that the subsidiary enterprise of the collective farm household will inevitably, from year to year, gradually lose its significance as a source of additional means of subsistence for the collective-farm family, in accordance with the further development and growth of the communal economy of the collective farms.

The growth in collective-farm production finds its concrete expression in the growth of sown area, gross crop production, and the yield of farm products, and in an increase in the head of cattle and their productivity.

When compared to the preceding five years, the period 1953-1958 showed an average annual rise of 38% in grain production in our country. (5) Grain production also increased in the collective farms of Rostov oblast. The gross grain crop per hundred hectares of agricultural arable land rose 163% from 1953 to 1958.

With the increase in total grain production in the collective farms of the oblast, there was in increase in labor-day payments of grain, flour, and meat, and a corresponding reduction in the share of the subsidiary enterprise in satisfying the collective farmers' needs for these products. Thus, whereas in 1952 the collective farmers obtained from their subsidiary farm plots about 7.7% of the total amount of grain, flour, and meal which they consumed, by 1955 the share of their plots in the satisfaction of these needs was only 1.7%, and in subsequent years it fell virtually to zero.

Thus, so long as the communal operations of the collective farms were not completely capable of satisfying the collective farmers' needs for grain, they raised grain crops on their garden plots. However, at the present time there are no longer any collective farmers in Rostov oblast who plant these crops on their plots.

The agricultural cooperatives have also scored significant progress in the field of livestock farming. Whereas in 1953 the average collective farm had 298 head of cattle, 146 pigs, and 835 sheep and goats, as early as 1957 the livestock rose to, respectively, 374, 255, and 913 head. (6) The yield obtained from livestock also increased. Thus, the average amount of milk per cow in the collective farms was about 1900 kg in 1958, as against 1016 kg in 1953. The head and yield of cattle in the collective farms of Rostov oblast is rising from year to year. Thus, the milk yield per cow in 1953 was 1047 kg, and in 1958 it was 1872 kg. The production of milk per 100 hectares of arable land rose from 23.0 centners in 1953 to 73.42 centners in 1958, and in the case of meat from 0.6 centners to 19.4 centners.

The increase in the output of livestock farming also affects the relationship between the quantity of products obtained by the collective farmers from communal operations and from their subsidiary farm plots. In Rostov oblast the tendency to reduce the share of products obtained by the collective farms from their personal plots is clearly evident if one examines the case of vegetables and melons. Thus, whereas in 1953 100 collective-farm families queried satisfied their needs for these products to the extent of 83.6% out of their personal plots, by 1957 they produced little more than one half of their consumption of vegetables and melons on their private plots. This tendency to reduction in the share of the farmer's plot in satisfying the needs of the collective farmers appears with equal clarity when one examines monetary income. As the communal enterprise of the collective farms grows stronger and develops, the portion of the income of collective farmers coming from their communal enterprises shows a preferential rate of growth. If we take the entire monetary income obtained by the collective farmers of this oblast as 100%, in 1953 they got 27.7% from communal operations of the collective farms, whereas in 1958 the figure had reached 42.0%.

Everything we have said above makes it possible to conclude that the subsidiary enterprises of the collective farmers will inevitably lose their significance as communal operations grow and become stronger.

A most important factor in accelerating the process of the dying out of the personal subsidiary enterprise is, also, the growth of socialist consciousness on the part of the collective farmers, making it possible to concentrate their efforts every more completely on the development of the joint efforts of the collective farms as the major source of the means of existence for the collective-farm family.

However, recognition of the inevitability of the dying

(Continued on Page 63)

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I. Oblomskaia:

Concerning the Enterprise Fund

A most important stimulus to the development of social production during the period of extensive building of communism is the principle of material incentive. However, in the practice of management this factor for the stimulation of production is not being employed at all adequately. The existing forms of stimulation of workers, technicians and office employees, while making them individually interested in the results of their work, are not sufficiently related to the results of the economic activity of the establishment as a whole. This objective could be effectively promoted by a form of material incentive such as the enterprise fund built up from a certain percentage of the enterprise's profits or savings from the reduction of production costs; in this way a certain relation is established between the surplus product created in the establishment and the material condition of its workers. However, this relationship and, consequently, the role played by the enterprise fund in providing a material incentive to the workers, and in revealing and mobilizing latent reserves of production for the purpose of effecting qualitative improvements, are still far from satisfactory. It is not surprising, therefore, that the question of the formation and utilization of the enterprise fund has become a subject of discussion by economists and the general public in the press. The magazine Voprosy Ekonomiki, for instance, has published articles by I. Usatov (No. 6, 1958), and A. Saitsev and F. Dronov (No. 3, 1959) on the role of the enterprise fund and the shortcomings in its formation and utilization. These questions are in need of further analysis and discussion, however.

According to the existing rules on the enterprise fund, establishments are divided into four groups, each with its own percentage of allocations to this fund, namely, 6%, 4%, 2% and 1% of the planned profits or planned savings from the reduction of costs, and 50%, 40%, 30% and 20% of the profits or savings from cost reduction over and above the planned indices. The total allocations to the enterprise fund cannot exceed 5% of the total payroll of the establishment, however. The fund is calculated on the basis of the operating results of the current year and is spent during the following year.

The setting up of this fund thus depends on the profit of the enterprise and the size of its payroll. It might seem that the fact that this bonus fund depends upon the payroll makes it possible to take account of the economic importance of the enterprise, the size of the work force, the nature and conditions of its labor. But is this so in reality?

Let us analyze the manner in which the enterprise fund is formed and used in the following plants, representing all groups for which differentiated allocations to the fund have been fixed (in thousand rubles; see table below).

The table shows that for the Hammer and Sickle Metallurgical Plant the sums equal to 5% of the payroll during 1950-1957 were less than those subject to allocation to the enterprise fund. As a result the allocations to the enterprise fund remained practically stable (a little over six million rubles a year) over the entire period regardless of the profit.

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Year	Hammer and Sickle Plant		Vladimir Ilyich Plant		Red Rose Combine		Paris Commune Mill	
	Subject to allocation from profit to enterprise fund	5% of payroll	Subject to allocation from profit to enterprise fund	5% of payroll	Subject to allocation from profit to enterprise fund	5% of payroll	Subject to allocation from profit to enterprise fund	5% of payroll
1950	7388	6466	2122	2345	1873	2191	1699	2195
1951	—	—	277	2098	1600	2399	8472**	2538
1952	—	—	848	2155	—	—	809	2612
1953	13389	6473	1235	2212	—	—	—	—
1954	9176	6348	837	2342	—	—	—	—
1955	8532	6231	1954	3367	1442	2502	996	3286
1956	6231	6190	2023	2450	914	2382	3050	3152
1957	12286	6915	2817	2752	1940	2448	1384	3159
1958	5530	7617	4787	3006	3669	2624	1532	3231

** [Editor's note: Judging from the discussion below, this is probably a typographical error.]

Hence, the fact that the profits of the plant during one year were greater than during another hardly affected the material rewards of the workers. In 1957, for example, nearly twice as much money should have been allocated from the planned and above-plan profits to the enterprise fund as in 1956, but owing to the clause restricting this sum

* This article is intended to pose the problem.

to 5% of the payroll, the 1957 allocations were only 11.7% above those of 1956.

In the three other enterprises the allocations to the bonus fund rarely reached 5% of the payroll throughout the period under consideration. For them this was the "ceiling" to which they could never ascend. The only exceptions were the years 1957 and 1958 for the Vladimir Ilyich Plant and 1958 for the Red Rose Combine. The Vladimir Ilyich Plant achieved this level thanks to the adjustment of the wage system, introduction of a uniform production schedule and a round-the-clock work schedule, strengthening of cost accounting within the plant, and the adoption of a new system of bonuses for the technical and office personnel. All these measures resulted in a substantial cut in production costs and an increase in profits.

Hence, in those enterprises in which the allocations to the bonus fund do not reach 5% of the payroll the said restriction plays no part. And where the allocations to the bonus fund regularly exceed the 5% limit (as, for instance, in the Hammer and Sickle Plant) this "ceiling" leads to the material reward of the workers remaining practically unchanged and unaffected by changes in the results of their work. The conclusion naturally suggests itself that this limitation of the enterprise fund is a useless thing.

Comrade Usatov proposed that the allocations to the enterprise fund should be made dependent upon the planned share of wages of production personnel in the cost of production. But the introduction of this index, as correctly pointed out by Comrades Dronov and Zaitsev, would not be conducive to technical progress.

Let us consider in this context the relation between the enterprise fund and the profitability of the enterprise. For this purpose we shall determine and compare the data on allocations to the enterprise fund and the profitability of the enterprise (the ratio of the profit of the enterprise to its yearly production costs) for the same four establishments. Of considerable importance also is the ratio of the above-plan to the planned profits, which, it seems to us, demonstrates more fully the success of the plant in finding and utilizing production reserves.

Year	Hammer and Sickle Plant		Vladimir Ilyich Plant		Red Rose Combine		Paris Commune Mill	
	Allocations to enterprise fund (in thous. rubles)	Profit (%)	Allocations to enterprise fund (in thous. rubles)	Profit (%)	Allocations to enterprise fund (in thous. rubles)	Profit (%)	Allocations to enterprise fund (in thous. rubles)	Profit (%)
1950	6446	14.4	2122	—	1873	7.9	1699	33.4
1951	—	—	277	2.5	1600	5.8	847	9.3
1952	—	—	848	4.7	—	—	809	16.0
1953	6473	25.6	1235	12.1	—	—	—	—
1954	6348	26.9	837	18.0	—	—	—	—
1955	6231	20.1	1954	19.5	1442	6.3	996	8.1
1956	6190	12.4	2023	8.6	914	4.1	3050	18.9
1957	6915	15.8	2752	14.8	1940	6.3	1384	16.2
1958	5530	12.3	3006	28.9	2624	9.7	1532	16.9

An analysis of these figures permits the conclusion that for those factories in which the enterprise fund is limited to 5% of the payroll (as in the Hammer and Sickle Plant, for instance), there is no connection between the total allocations to the enterprise fund and the size of its profits. Indeed, during the period under consideration the Hammer and Sickle Plant profit rate advanced from 12.3% to 26.9%, or more than doubled, while the allocations to the enterprise fund increased by only 14.6% (from 5,530,000 rubles with a 12.3% profit rate to 6,348,000 rubles with a 26.9% profit rate). The discrepancy between the profitability and the allocations to the enterprise fund is patent also from the data for 1954 and 1957. With a 26.9% profit rate (1954) the allocations to the fund amounted to 6,348,000 rubles, whereas with a 15.8% profit rate (1957) they amounted to 6,915,000 rubles, that is, 567,000 rubles more than when the rate of profit was higher. The table also shows that at enterprises of those branches where the allocations to the bonus fund were below 5% of the payroll, the rate of profit did not substantially affect the size of the allocations to the fund. Thus, at the Vladimir Ilyich Plant the rate of profit in 1958 was twice as high as in 1957, but the allocations to the fund increased by only 9.2%. In 1953 the rate of profit was nearly treble that of 1952, yet the allocations went up only 45.7%; in 1954 the rate of profit was 48.7% higher than in 1953, but the allocations to the fund dropped considerably; also in 1956, when the rate of profit was 2.3 times below that of 1955, the allocations remained virtually unchanged. The same applies to the Red Rose and Paris Commune enterprises. Thus the actual allocations to the enterprise fund have either no relation to changes in the rate of profit or a very slight relation to them.

The situation in regard to the third index, the ratio of the above-plan to the planned profits, is different. The total size of the enterprise fund depends to a large extent upon the amount of above-plan profits, the allocations from which are from 8 to 20 times greater than those from the planned profits. The ratio of the above-plan to the planned profits in the total sum of accumulations greatly influences the formation of the enterprise fund. That is precisely why the allocations to the enterprise fund at the Vladimir Ilyich Plant, despite the general rise in the rate of profit in 1954 compared with 1953, decreased, the ratio of the above-plan to the planned profit having dropped by more than six times during the same period. At the same time, in 1956, despite a sharp drop in the rate of profit, the allocations to the fund went up, the ratio between the above-plan and planned profits having gone up more than five times. The same is true of all other enterprises.

Since the total allocations to the enterprise fund are

largely dependent upon the size of the above-plan profits, this might at first glance seem to be a positive factor stimulating the workers towards organizational and technical steps in search of latent reserves to fulfill and overfulfill the plan targets. However, a closer examination of the subject leads to different conclusions.

It is known that many enterprises effect above-plan savings even though they have overexpenditures in some of the elements of production costs. Thus, in the Paris Commune Mill, where losses from spoilage and unproductive expenditures in 1956 and 1957 amounted to 3,958,000 and 4,852,000 rubles respectively, the cost of production of the entire marketable output was 1.4% below plan in 1956 and 0.9% below plan in 1957. In 1958, the Red Rose Combine, where losses from secondary processing of fabrics and unproductive expenditures amounted to 2,826,000 rubles, the above-plan savings equalled 9,621,000 rubles. The Vladimir Ilyich Plant regularly records above-plan savings while sustaining spoilage losses from year to year. These savings may be due to plan targets being below the potentialities of the factories, which enables them to effect above-plan economies despite overexpenditures on some of the cost items. The tendency of some managers to strive for low production plans is induced, to some extent, by the existing rules on allocations to the enterprise fund.

Attention has already been drawn to this fact in economic literature, and the negative effect it produces on the consolidation of the principles of cost accounting and planning in the operation the socialist enterprises has been noted.

Above-plan profits largely depend upon above-plan output, the volume, nomenclature and production date of which are not stipulated in advance; this makes it difficult to market this output promptly. In the Red Rose Combine, for instance, 700,000 rubles worth of finished goods manufactured in excess of the plan were stocked up in the warehouses during August-December 1958. In the first 10 days of January 1959 another 40,000 meters of above-plan fabrics worth 575,000 rubles, for which there was no market, were added to this. All these goods remained in the warehouses for a long time, the wholesalers refusing to accept them as commodities for which no provision had been made in the supply and marketing plans. As a result, the resources expended on their manufacture lay frozen in the form of finished products, to the detriment of the economy.

Another point to be considered is that the higher percentage of allocations to the enterprise fund out of above-plan profits evokes the unhealthy tendency to overfulfill the plan by producing "profitable," that is, expensive, goods. In most cases these goods have long been in production and have gone out of fashion. In this way a material stimulus is created for the production of old patterns of goods which are no longer in demand, instead of a stimulus for patterns. Thus the Hammer and Sickle Plant in 1957 greatly exceeded its accumulation plan by forcing the output of expensive brands of steel, as is shown by the following table on the fulfillment of output and accumulation plans in factory shops (in %):

	Output plan fulfillment	Accumulation plan fulfillment
Open hearth shop No. 2	102.5	304.2
Sheet rolling shop	99.8	161.8
Calibrating shop	102.6	113.9
Rope shop	101.1	193.3
Foundry shop	99.7	103.2

These figures show that while there was a slight overfulfillment of production targets, and though the sheet rolling and foundry shops actually failed to fulfill their production targets and even exceeded the planned cost of production, the accumulation targets were substantially exceeded, this applying also to the shops which failed to produce the planned quantities of rolled sheet and smeltings. This shows that overfulfillment of the accumulation targets was achieved not by raising the efficiency of the plant but by forcing production of the more costly and, therefore, the more profitable goods, the sales price of which does not correspond to the labor put into them.

The same is also true for the Red Rose Combine. Here the allocations to the enterprise fund in 1958 were the biggest in nine years, amounting to 2.6 million rubles. Yet it was precisely in that year that the combine had to pay 1,246,000 rubles in fines for failure to fulfill its assortment plan and for turning out outmoded (but "profitable") patterns of cloth. On top of this, the combine had stocked up 1.5 million rubles worth of short cuts and measured scrap (pieces of fabric remaining after spoiled parts had been cut out of them) for which a market could not be easily found. Nor did the situation change in 1959, the combine continuing to turn out fabrics for which there was no demand. During the months of May to July alone the trading network turned down 5.4 million rubles worth of finished cloth for this reason. As for fines paid by the combine for violating the assortment, they do not practically affect the situation because they are charged to production costs and the enterprise's personnel are not made to suffer materially.

It follows from the above that the system of allocations to the enterprise fund is in need of revision. It should not be based on stimulating the overfulfillment of plan targets but on stimulating the fullest possible reckoning with all potential production reserves in the planned assignments. Hence, it would be more to the point to make allocations to the enterprise fund out of the entire profit, without dividing it into planned and above-plan profit. To avoid putting into a privileged position those enterprises which are more profitable thanks to the specific advantages of their material base, organization and type of output, consideration should be given to the dynamics of profitability, i.e., the allocations to the bonus fund should be made dependent upon whether the enterprise's profits go up or down in comparison with the preceding period. This is particularly important under the existing system of planning, which makes the targets for the next year dependent upon the performance of the current year. Hence, the better a factory works one year the more difficult it is for it to secure conditions for a bonus the next year. If we reckon with the dynamics of the factory's profitability in fixing the bonus fund, it would help to eliminate this difficulty.

In the light of the decisions of the June 1959 Plenum of the Central Committee of the CPSU, it seems proper to make fulfillment by the enterprises of plans for new lines of production and installation of modern techniques one of the conditions for fixing the enterprise fund.

The utilization of the enterprise fund also suffers from substantial defects.

To begin with, it is necessary to decide whether the provision that half the fund must be used to expand output is a useful one. An analysis of the data for the enterprises named shows that money drawn from the enterprise fund for use in expansion of output is very small compared to the funds assigned for capital investment out of the budget. Enterprises receive budgetary allotments for capital investment even if they have no bonus funds. Hence, the

expansion of an enterprise and of its output has, in essence, practically no relation to the existence and use of the enterprise fund. This may be illustrated by the following table, giving data on expenditures for expansion of production over a number of years by the Vladimir Ilyich Plant out of the enterprise fund, on the one hand, and out of budgetary allotments, on the other (thous. rubles):

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	1950	1951	1952	1953	1954	1955	1956	1957
Expenditures on new technology, modernization of equipment, expansion of output and housing out of enterprise fund	499	897	88	146	253	429	343	605
Budgetary allotment for capital investment	3942	4132	2167	3491	1679	3851	5486	1583

Only in 1951 and 1957 did the enterprise fund play any appreciable part in financing these measures as compared with budgetary allotments (about 22% and 37% respectively), this resulting from the fact that the fund money used had accumulated for a number of years; in the other six years it amounted to from 4% to 16% of budgetary allotments.

In the Hammer and Sickle Plant the estimates for 1958 called for the spending of 1.5 million rubles on new technology, modernization of equipment and housing construction out of the enterprise fund and 27.9 million rubles out of budgetary allotments. In 1955 the Paris Commune Mill had no enterprise fund but received 13 million rubles for capital investment from the budget.

Thus, whether an enterprise has a bonus fund or not, it receives the money required for expansion from the budget. The question arises: would it not be wise to stop using the enterprise fund for expansion purposes, especially since there is a system of credits for mechanization and modernization of production? True, the enterprise fund is used to supplement the capital investment plan and the enterprise is free to use it at its own discretion. But the credits granted by the banks for mechanization and modernization of production offer the enterprises great possibilities of using this form of production financing.

Until recently, enterprises made insufficient use of this important source of funds for improving and developing output. Lately, however, these credits have been increasingly used from year to year. The conclusion suggests itself that with the wider use of credits and the granting of greater powers to enterprises in their use, there will be no need to resort to the enterprise fund for mechanization and modernization purposes.

Part of the enterprise fund is used to improve cultural and welfare services to the factory personnel: to furnish and equip the kindergarten, nurseries and Young Pioneer camps, to buy books for the factory libraries and accomodations at recreation homes and sanatoriums, to build factory hospitals, etc. But, as is well known, from year to year the government's appropriations for these purposes grow, and the share of enterprises' expenditures is only a fraction of the total of such expenditures. This may be judged from data on the sources from which the cultural and welfare services are financed at the Vladimir Ilyich Plant (thous. rubles):

	1950	1951	1952	1953	1954	1955	1956	1957	1958
Budget appropriations for kindergartens and nurseries	1954	1788	1716	1499	1482	1563	1495	1530	1089
Money used for cultural and welfare services out of the enterprise fund	66	159	127	51	89	42	50	65	111

The same applies to the Red Rose Combine, where in 1957 only 241,000 rubles were spent on cultural and welfare services out of the enterprise fund, as against 2,103,000 rubles received from the budget for kindergartens and nurseries alone. At the Paris Commune factory 508,000 rubles were spent in the same year for cultural and welfare services out of the enterprise fund, while 1,571,000 rubles were received from the government for the maintenance of kindergartens and nurseries. Even in 1954, when the factory had no bonus fund, it received 1,383,000 rubles out of the budget for its kindergartens and nurseries.

A comparison of the budgetary appropriations for kindergartens and nurseries at the Vladimir Ilyich, Red Rose and Paris Commune factories with their entire enterprise funds also shows that the former are at least equal to and often exceed the latter.

To secure an appreciable improvement in the factory cultural and welfare services it might make sense to spend the entire enterprise fund for this purpose. It is highly significant that some enterprises have already adopted this policy. A case in point is the Urals Car-Building Plant, which has decided to meet the entire needs of its work force for kindergartens and nurseries in three years by assigning all allocations to the bonus fund for this purpose. Such purposeful use of the fund appears to us to be a wise measure in stimulating the workers of the plant. We also think it more expedient to devote the entire fund, instead of only 70% as is the case at present, to housing construction, with priority for the best workers among those in need of flats. The particular kind of welfare service (kindergartens and nurseries, housing, etc.) that should receive preference in the fund should be decided with a view to the needs of the enterprise and with the approval of the general meeting of the workers.

This is not the only use to which the bonus fund may be applied, of course. Premiums to the best production

workers should hold an important place in it. Yet, only a small part of the enterprise fund has been used for individual bonuses, as the following data on individual bonuses per worker in industrial operations show (in rubles):

	1950	1951	1952	1953	1954	1955	1956	1957	1958
Hammer and Sickle Plant	—	—	—	—	—	115	24	20	147
Vladimir Ilyich Plant	37	52	37	15	47	81	79	110	151
Red Rose Combine	0.22	19	2	—	—	0.28	0.19	71	95
Paris Commune Mill	28	22	16	19*	—	—	55	93	50

* With no enterprise fund.

It appears from the table that the size of the average bonus paid has displayed a tendency to grow in recent years. However, even the highest bonus per worker out of the enterprise fund (151 rubles) is insignificant compared with the average annual wage in these factories, which varies between 14,400 rubles at the Hammer and Sickle Plant to 8,800 rubles at the Paris Commune factory.

The fact that about two-thirds of the enterprise fund is used for expansion, modernization and welfare leads to failure to use the whole of the fund allocations during the current year and to setting them aside for future years. This is evidenced by the data in the table below, showing how unevenly the enterprise fund is used by the factories (expenditures in % of the given year's allocations):

	1950	1951	1952	1953	1954	1955	1956	1957	1958
Hammer and Sickle Plant	—	114.1	—	—	19.1	60.9	106.5	121.2	102.5
Vladimir Ilyich Plant	815.5*	59.1	132.5	30.7	44.2	99.8	61.6	64.4	48.3
Red Rose Combine	5.3	49.3	5.4	—	—	—	37.4	82.7	100.4
Paris Commune Mill	41.2	35.2	47.1	23.6	—	—	168.6	75.7	191.7

* [Editor's note — This seems to be a typographical error and should probably read 81.5.]

As a rule, enterprises do not use their full bonus funds in the current year (with the exception of those years in which the fund accumulations for several years are large enough to allow for output expansion measures to be effected).

The right of the enterprise to use the bonus fund of any one year in a later year results in bonuses being paid to some of the employees even in those years in which the enterprise fails to earn a bonus, owing to inefficient operations. By such redistribution of the bonus its dependence upon efficient management is weakened. The practice of using the fund in subsequent years ought to be discarded.

It would also be advisable to allow the enterprises to use the entire enterprise fund at their own discretion for individual bonuses, if the enterprise operated efficiently during the given year and finds it necessary to reward its particularly outstanding personnel. In this case the bonuses would exceed half a month's basic wage rate per man, viz.: about 800 rubles at the Hammer and Sickle Plant, 600 rubles at the Vladimir Ilyich Plant, 500 rubles at the Red Rose Combine, and 400 rubles at the Paris Commune Mill. To stimulate the workers' material incentive and increase the profitability of the enterprise, it might also be advisable to assign a large part of the bonus fund to the various shops, depending on their success in cutting production costs. This would enable the shop administration to reward their best people. The dependence of the shop bonus funds upon the reduction of production costs would help to strengthen cost accounting and stimulate economies in materials and labor at the decisive point of production, the shop, thereby stimulating output as a whole.

Thus, in order to raise the material incentive of the workers in improving the efficiency of their enterprise, the importance of the enterprise fund as a form of material stimulation should be heightened. In order that the enterprises may be made to feel directly the results of their work, it is advisable to eliminate the clause limiting the enterprise fund to 5% of wages, to make allocations to the fund from the entire profit (and not separately out of planned and above-plan profits), provided the plan for production of new items and for the introduction of new technology is carried out and the dynamics of the enterprise's profitability are also taken into account as a deciding factor, to stop using the fund for above-plan investment in output expansion and to use it entirely at the discretion of the enterprise for individual bonuses and for cultural and welfare services, and to spend the entire fund, as a rule, during the current year.

Improvement in the building up and use of the enterprise fund will help to increase the material incentive of every worker and of the work force of the enterprise as a whole in raising its efficiency and increasing labor productivity.

Planovoe Khoziaistvo - Planned Economy - No. 11, 1959

E. Antosenkov and V. Moskalenko:

The Soviet Union's Program of Reducing the Working Day and the Working Week

A steady improvement of the living standards of the population on the basis of an uninterrupted expansion of production and a rise in the productivity of social labor is a law of development of socialist society. The decisions of the 21st Congress of the Communist Party of the Soviet Union point out that at the present stage when great industrial and agricultural progress has been made, all the conditions are at hand for Soviet people to live still better in the near future and to meet their material and spiritual requirements more fully.

An important index of the rising living standards in the period of extensive building of communist society is the further gradual reduction of working time as provided for by the 21st Party Congress. The Congress decisions have set the highly important task of achieving the world's shortest working day and working week in the Soviet Union.

A significant step in that direction was last September's decision by the Central Committee of the CPSU, the Council of Ministers of the USSR and the All-Union Council of Trade Unions on the dates for completing the switch to the shorter working day and on adjusting the wages of industrial and office workers in the various branches of the national economy and economic regions of the country.

The closer we approach a communist society the shorter the working day should be. The gradual increase in leisure time through reduction of the working day creates more and more opportunities for the all-round development of the individual. Karl Marx, the great founder of scientific socialism, stressed that the wealth of the society of the future would be measured by the amount of leisure time it had at its disposal.

The gradual transition to communism is accompanied by an accelerated development of mechanization, automation, electrification and use of chemical processes in production, the broad utilization of atomic power, electronics, computer techniques, etc. This is basically changing the nature of work, making manual work more and more resemble that of engineers and technicians. This requires workers at socialist establishments to possess all-round knowledge and an ability to handle complex machinery, equipment and high precision instruments.

Shorter hours and more leisure time give citizens of our country who are engaged in useful work in the national economy greater opportunities to obtain a secondary or higher education without giving up work and to raise their qualifications. This, in turn, offers greater opportunities to eradicate the considerable differences between mental and physical work that still exist today.

At the same time, a shorter working day increases the time that may be spent in cultural development, rest and recreation, sports activities and artistic pursuits. For this reason, reduction of working time will play an important role in the further all-round development of the mental and physical capabilities of the people, citizens of the communist society of tomorrow.

The change in the nature of work in the course of the transition to communism, together with the gradual reduction of hours and the increase in leisure time, are the foundation for the further gradual conversion of work into a vital necessity for all members of society.

The socialist economic system creates an objective possibility and necessity for gradually reducing the working time of the population together with a simultaneous improvement of their material well-being. As construction of the material and technical basis of communism develops, opportunities to reduce working time will steadily increase.

Growth of the productivity of social labor is the chief prerequisite for reducing working time. There is the closest interdependence between the length of the working day and productivity, said Marx. The level that the productivity of social labor has reached in our country permits the transition to a shorter working day. This, in turn, is a prerequisite for a further rise in productivity and, hence, a still greater reduction of hours in the future. "Economy of working time is equivalent to increasing leisure, i.e., time for that full development of the individual which itself, in turn, as a great productive force, influences the productive force of labor."*

In conformity with the decisions of the 20th Party Congress, the gradual transfer of the Soviet Union's industrial and office workers to a seven-hour day, and workers in the key occupations in the coal and ore mining industries employed in underground work, to a six-hour day, was begun in 1956 and 1957. An important feature of this changeover to a shorter working day was that it went hand in hand with an adjustment of work quotas and wages.

The first major step in this direction was made at the end of 1956 and the beginning of 1957 when workers and engineering-technical personnel employed in underground jobs in the mines of the Donets and Lvov-Volynia coal fields were transferred to a seven or six-hour day and a new scale of payment was introduced. As a result, in January 1957 about 430,000 mine workers were on a shorter day; of these, more than 200,000 had been transferred to a six-hour day. At the end of 1957 the ore mines, mills and coke and chemical works of the iron and steel industry — with a staff of about 700,000 persons in all — went over to a shorter working day and a new wage scale.

Then in 1958 and 1959, the non-ferrous metals, chemical and cement industries, plants manufacturing reinforced concrete materials and sections, and salt and ozocerite mines were transferred to a shorter working day and a new system of payment.

At the present time arrangements are being made for the large-scale transfer of the machine building, metalworking, oil and gas industries of a seven or six-hour day, with a simultaneous adjustment of wages.

* From unpublished manuscripts of Karl Marx in Bolshevik, 1939, No. 11-12, p. 65.

In a considerable number of economic regions many establishments in these industries have already gone over to a shorter day.

At the beginning of 1959, the first year of the seven-year plan period, the average duration of the working day in Soviet industry was 7.7 hours. As compared with 1913, this was a reduction of 2.2 hours, and in some industries even more. This may be seen from the following table.

Average Duration of the Working Day of Industrial Workers in the USSR
(in hours)

	Adult Workers			Reduction between 1913 and 1959
	1913	1956	Beginning of 1959	
Average for all industries	9.9	7.96	7.70	2.20
Including:				
power stations	8.7	7.98	7.14	1.56
coal	10.1	7.94	7.03	3.07
iron and steel	10.1	7.98	7.05	3.05
machine building and metalworking	9.7	7.97	7.81	1.89
chemical	9.6	7.74	6.91	2.69
paper	10.0	7.97	7.90	2.10
textile	9.6	7.98	7.96	1.64
leather and fur	10.0	7.99	7.98	2.02
boot and shoe	9.9	8.00	7.98	1.92
food	10.8	8.00	7.99	2.81

The transfer of all industrial and office workers to a seven-hour day, and workers in the key occupations employed in underground jobs to a six-hour day, will be completed in 1960.

The Central Committee of the CPSU, the Council of Ministers of the USSR and the All-Union Central Council of Trade Unions have deemed it necessary to complete the transfer to the seven or six-hour day in various branches of the economy and various economic regions of the country in the following order:

in industries in the North, Far East, Siberia, the Urals, the Kazakh Republic, Moscow and Moscow Region, Leningrad and Leningrad Region and Ivanovo Region the transfer will be made between the fourth quarter of 1959 and the fourth quarter of 1960; in the remaining economic regions, in the third and fourth quarters of 1960;

at construction sites and in geological exploration jobs in regions of the North, Far East, Siberia, the Urals and the Kazakh Republic the transfer will be made in the second quarter of 1960, and in the other economic regions in the fourth quarter of 1960;

in the transportation and communication services the transfer will take place between the fourth quarter of 1959 and the fourth quarter of 1960;

at state agricultural establishments it will be made during the fourth quarter of 1960;

at research institutions and auxiliary organizations the transfer will take place between the second and fourth quarters of 1960;

at establishments and organizations of the trade system, public catering, state procurements and material and technical supplies system, at educational, public health and cultural establishments, and at establishments, organizations and institutions of the arts, the state apparatus and other non-productive enterprises, the transfer will be made in the third and fourth quarters of 1960.

In this way the transfer of all industrial and office workers in our country to a shorter working day will be completed during the first two years of the seven-year plan period.

In 1962 everybody working a seven-hour day will be transferred, at the same time, to a 40-hour week, while workers in the key occupations in the coal and ore mining industries, who now have a six-hour day, will be switched to a 35-hour week by reducing by one hour the length of the working day before days off and holidays.

Finally, between 1964 and 1968 all industrial and office workers will gradually go over to a 30-35-hour week. In other words, persons employed in underground or other jobs injurious to the health will have a 30-hour week (five working days of six hours each with two full days off), while everybody else will work a 35-hour week (five days of seven hours each with two days off).

Tentative estimates show that after introduction of the 40-hour week in 1962 and the 30-35-hour week in 1964-1968 the average length of the working week in Soviet industry will be from 22 to 24% less than in 1957. In different industries the change will be approximately the following (see table on the following page).

The changeover to a shorter working day and shorter working week in 1959-1968 will be carried out, as in previous years, not only without reducing wages but, on the contrary, under conditions leading to a considerable rise in wages. In conformity with the target figures for the development of the national economy between 1959 and 1965, the real incomes of industrial and office workers will rise by 40% per working person during the seven-year plan period. This means that when working a 30-35-hour week at the end of the seven-year plan period, the incomes of working people will be about 76 to 80% higher per working hour than in 1958; in the case of the lower-paid categories the increase will be still higher since the minimum money

Average Length of the Working Day in Soviet Industry
(in hours)

Industry	1957	1960	1962	1964-1968
Coal	42.5	38.9	38.3	32.9
Iron and steel	44.4	40.9	39.9	34.3
Non-ferrous metals	44.2	40.7	39.7	34.7
Oil extraction	45.9	40.9	40.0	34.9
Oil refining	43.8	40.5	39.6	34.5
Power stations	45.9	41.0	40.0	35.0
Machine building	45.6	40.9	40.0	35.0
Chemical	44.3	40.5	39.6	34.5
Timber and paper	45.7	41.0	40.0	35.0
Other industries	45.9	41.0	40.0	35.0

earnings will go up from 270-350 rubles a month to 500-600 rubles a month. The adjustment of wages in the transition to the six and seven-hour day will itself bring the minimum earnings up to 400-450 rubles a month. This rapid rate of growth of the incomes of the working people with a simultaneous reduction in working time is striking evidence of the efforts made by the Communist Party for a steady rise in the living standards of the population.

As in previous years, a further rise in labor productivity continues to be an essential condition for reducing the working day and week. In the current seven-year period, labor productivity per employed person will rise by 45-50% in industry, 60-65% in the building trades, and 34-37% on the railways. High rates of growth of labor productivity are also planned in agriculture. As a result, three-quarters of the increase in total output envisaged by the Seven-Year Plan will be obtained through higher labor productivity.

However, with a reduction of the average working week from 44.3 hours to approximately 34.5 hours, output per hour has to rise still more. Calculations show that in those industries which will have gone over completely to the 30-35-hour week by 1965, output per hour must be raised by approximately 80 to 85%.

The material foundation for the projected growth in labor productivity and the decline in working time will be the technological progress in all branches of the national economy stemming from the vigorous development of Soviet machine building, particularly machine tools and instruments, radio-electronics and electrical engineering.

Introduction of a shorter working day in the textile and a number of other industries is now hampered by a shortage of reserves of productive capacities. However, large-scale reconstruction, partial expansion and modernization of the factories and mills in these industries will make it possible in the near future not only to increase output but successfully to go over to a 41-hour week and then a 35-hour week, at the same time reducing and then completely eliminating night shifts.

The Central Committee of the CPSU, the Council of Ministers of the USSR and the All-Union Central Council of Trade Unions have drawn the attention of party, Soviet, economic and trade union organizations to the need for timely and thorough preparations by establishments for operating under the new conditions of a shorter working day, and for supervising these preparations in the localities, keeping in mind that production plans and targets for a rise in labor productivity must be observed unconditionally.

Preparations for the transition should begin with an analysis of how working time is used and an exposure of bottlenecks in the shops and sections. Drawing up a plan of organizational and technical measures to ensure a rise in labor productivity is a highly important stage in the preparations. The plan should contain the necessary calculations and substantiation of the results to be yielded by such measure.

In the preparation for the transition to a shorter working day and new wage scales, particular attention should be paid to the extensive introduction of technically justified work quotas. Work quotas that are out of date and behind the present level of technology and organization should be revised and replaced by technically-substantiated quotas. The conditions for doing so are being created by the simultaneous implementation of such important measures as the shorter working day and the adjustment of wages. At the Vladimir Ilyich Factory in Moscow, for example, the share of technically-substantiated quotas rose, after the transition, from 20 to 65.1%, accompanied by a considerable rise in labor productivity. At the Krasny Iakor Plant in Gorky the introduction of a new wage scale at the time of the transition to shorter hours made it possible to put more than 10,000 technically-substantiated quotas into effect in the main shops alone. This is 60% of the total number of quotas in effect at the plant.

Preparations for a transition to a shorter working day must include a revision of the planned operating time of all types of equipment and determination of the volume of output when maximum use is made of this equipment. This will enable the enterprise to establish where the production program can be fulfilled under the new conditions by better utilization of the existing plant and where additional machines and units will have to be installed or the number of shifts increased.

In the course of preparations the question will have to be settled whether it is better for the entire establishment to shift to the new system at once or whether it should be done by shops and sections. The order in which shops and sections will be transferred to the shorter working day will depend upon working conditions, the system of work in the shops and sections, and the role which each shop and section plays in fulfilling the over-all output program of the establishment.

Experience at establishments already on the seven-hour day shows that special attention should be devoted to improving the organization and servicing of work-places. It is advisable that all operations connected with providing the workers with materials, tools and blueprints, as well as the adjustment and minor repairs of machinery should be done outside of the regular working shifts.

Success in shifting to a shorter working day is inseparably linked up with improving the supply of materials and equipment to the enterprises. Experience shows that irregularities in the supply of raw materials and other materials and late or incomplete delivery of equipment make themselves particularly felt under the shorter working day. The chief aim of the preparatory work should be to create the conditions for maintaining and then further raising the daily output of the workers. Only in that case will the reduction of the total working time of the establishment as a whole, and of each worker in particular, not result in disruption of fulfillment of the output programs. It should be borne in mind that preparatory work should begin in good time so that the staffs of the establishments will not only be able to bring reserves to light but also to carry out the organizational, technical and economic measures necessary to permit their utilization. A situation in which an establishment receives instructions to shift to a shorter day shortly before the date set for the changeover is abnormal. What this leads to may be seen from the example of the Krasnyi Proletarii Printing Plant in Moscow. It received instructions to go over to a seven-hour day 13 days before the date set for the switch. Naturally, the printing plant staff was unable to carry out the required organizational and technical measures in two weeks. As a result, for a period of three to four months after the changeover the daily output of the workers was 5-6% lower than when the eight-hour day had been in force.

A point to be noted is that up until recently many economic councils — those in which the machine building, metalworking, light, food and other industries predominate — had to deal with the changeover of only individual factories and mills to the new system, those making the change by way of experiment. The mass transfer of all personnel employed in industry, construction and the transportation services to a seven or six-hour day during 1960 will demand that much more attention be paid to this important matter.

In his report to the 21st Party Congress, comrade Khrushchev pointed out that the Seven-Year Plan had been drafted with a view to its fulfillment without over-strain, which provides favorable conditions in which to improve the utilization of equipment and manpower, eliminate idle working time, and ensure the more rhythmical operation of industrial enterprises. All this is of great importance for the further successful reduction of the working day and the working week. It considerably lessens the possibility of disproportions arising in the output of allied establishments and industries that go over to the new system at different times.

The reduction in the total of working time that results from the transition to a shorter working day can be compensated for, as is known, by an additional increase in per-hour output or by increasing the number of workers employed in bottleneck sections where the daily output level cannot, for one or another reason, be maintained under the shorter working day. As the experience of the years 1956 to 1958 shows, ways and means of maintaining and subsequently increasing the workers' daily output when shifting to shorter hours are determined by the specific conditions of the given factory or industry, in particular, by the existence of reserve productive capacities, the nature of production, its technology, and also the organizational work done preparatory to the changeover and the mobilization of existing reserves for raising labor productivity.

The greatest difficulties in this respect are encountered at establishments with limited reserves of productive capacities, and also at sections where production is continuous or follows a definite rhythm (continuous-flow lines, conveyor lines, etc.), particularly in the iron and steel, non-ferrous metals, machine building and chemical industries. However, the experience of 1956-1958 shows that here, too, there are considerable opportunities for reducing additional manpower requirements both by putting through organizational and technical measures, as well as by improving the distribution and utilization of the existing manpower at enterprises.

The decision of the Central Committee of the CPSU, the Council of Ministers of the USSR and the All-Union Central Council of Trade Unions notes that special attention should be paid to introducing new industrial techniques, to mechanizing production processes, to specialization and cooperation of production, to assuring the smooth operation of establishments, reducing losses of working time, and improving the organization of labor. These measures make it possible to compensate for the reduction of the working day by an increase in labor productivity without taking on additional workers.

It should be noted that at enterprises in a number of industries there were substantial shortcomings during the initial period of preparations for switching to the seven or six-hour day in 1956 and 1957. In many cases the planning of the transfer amounted, in effect, to nothing more than selecting a new system of work for the shops and sections, and determining how many additional workers were needed so that the transfer should not disrupt fulfillment of the output program. Internal production reserves were often neglected.

The result was that in some cases the additional manpower requirements of enterprises were estimated to be greater than actually necessary. For instance, it was originally estimated that the Azovstal mill would need another 700 workers, and the Stalinogorsk Chemical Works another 179, in order to go over to shorter hours. But the first few months of preparation for the transfer at these enterprises showed that the above estimates could be cut considerably by drafting and introducing appropriate technical organization and economic measures. The outcome was that the additional manpower requirements of the Azovstal mill were reduced to 472 workers, or by 32.5%, and those of the Stalinogorsk Chemical Works by more than 70%.

After thorough organizational and technical preparations the originally planned additional manpower requirements of the Magnitogorsk Iron and Steel Works were cut by 60%, of the Zaporozhstal mill by 61%, and of the Krovoi Rog Iron and Steel Works by 69%.

The discovery of substantial unutilized production reserves, resulting partly from the disorder in wages and output quotas, enabled most of the enterprises that went over to shorter hours in 1956-1958 to do so without any particular strain and to fulfill their output programs at the same time. For example, it was largely thanks to better organization of production and labor and the reduction of losses during the changeover to shorter hours in the mines of the Donets coal fields that the average hourly output of coalface workers increased by more than 25 to 28% in the course of several months, and by more than 10 to 12% in the case of the other underground workers, whereas the output of workers engaged in extraction had risen by slightly more than 11% over the previous six years.

A study of seven enterprises of the Moscow City Economic Council (Watch Factory No. 2, the Manometer Factory, the Presnia Engineering Works, the Kapranov Shoe Factory and others) which have gone over to a shorter working day during the past two years shows that their output increased by an average of 5.4% in the first three months of working under the new system, while monthly

labor productivity rose by 5.6%, with a reduction in the number of workers.

Completion of the transition to the seven and six-hour day during 1960 will also require thorough preparations to attain the goal set by the 21st Party Congress, namely, to make the USSR the country with the world's shortest working day and shortest working week. It should be noted that the transition to the 30-35-hour week in 1964-1968 will differ in a number of ways from the changeover now being made to the 36-41-hour week.

The switch from the 46-hour to the 41-hour week in 1956-1958 meant reducing the sum total of working time per working person by 10.9% ($\frac{41 \times 100}{46} = 89.1\%$), which necessitated an additional rise of 12.2% in the hourly output of the workers ($\frac{46 \times 100}{41} = 112.2\%$).

But in shifting from the 40-hour to the 35-hour week the sum total of working time per working person decreases by 12.5% ($\frac{35 \times 100}{40} = 87.5\%$). This will necessitate an additional rise of 14.3% in the hourly output of the workers ($\frac{40 \times 100}{35} = 114.3\%$). We thus see that the additional increase in the hourly output of the workers, when going over to a 35-hour week in 1964-1968, will have to amount to 14.3% compared to 12.2% when changing over to the 41-hour week in 1956-1958.

Furthermore, it should be remembered that the actual average length of the working day at industrial enterprises was, as a rule, less than eight hours even without counting loss of time during shifts. This is explained by the fact that even before the changeover certain categories of workers had a working day shorter than eight or seven hours (workers employed in jobs injurious to the health, minors, etc.). Moreover, as laid down by law, night shifts lasted seven hours. As a rule, therefore, enterprises had to increase the hourly output of workers not by 12.2% but by a slightly smaller figure in order to fulfill the production programs when working the shorter day. For example, at the Manometer Factory in Moscow the increase had to be only 9.2%, and at the Automobile and Tractor Parts Factory in Kuibyshev only 4-5%.

The specific features of the forthcoming transition to the 30-35-hour week require that enterprises and economic councils make efficient preparations well ahead of time. Technological progress and further improvement of the organization of production and labor will be particularly important.

There is no doubt that a much higher standard of planning will be needed in carrying out such an important measure as the transition to a shorter working week. When industrial enterprises shifted to a seven-hour day in 1956-1958 the transition was not, as a rule, made a part of the yearly plans of the enterprises. The organizational and technical measures that were carried out were therefore supplementary to those provided for in the yearly plans; moreover, they were frequently carried out only two or three months before the transition.

The specific features of the transition to the 30-35-hour week in 1964-1968 will obviously require that the transition itself, and all the organizational and technical measures connected with it, should be included in the current plans of the enterprises. In our opinion, this will considerably raise the quality of preparations for shifting to a shorter working week, making them more purposeful, enabling better account to be taken of the enterprise's reserves for increasing labor productivity, and utilizing them to the maximum in order to fulfill the output program at the same time as reducing the total of working time.

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Sotsialisticheskii Trud - Socialist Labor - No. 11, 1959

I. Pisarev:

The Use of Social Funds in Public Consumption

A characteristic feature of consumption under socialism is the fact that a considerable and ever-increasing portion of material and cultural goods are distributed through such forms as pensions, living allowances to students, grants-in-aid to husbandless mothers and mothers of large families, appropriations for the construction and maintenance of housing, schools, hospitals, day nurseries and kindergartens, boarding schools, and cultural institutions. The increase in the share of these social forms of consumption is an important prerequisite for the gradual transition to the communist principle of distribution.

The rapid increase in the living standard of the working people and the qualitative changes in the utilization of these social funds during the period of all-out building of communism present the planning agencies with the pressing practical problem of the scientific organization of national consumption. During this period, the most favorable material prerequisites are being created for a scientific organization of the entire economics of consumption on the basis of the progress made in socialist production.

In the USSR and in other socialist countries, a new science, the science of public consumption, the economics of the people's consumption, is developing out of the day-to-day practice of economic planning. Whereas it is an integral part of labor economics, it is also intimately related to demography. The common theoretical basis of these sciences is the political economy of socialism. The science of public consumption also involves sanitation, hygiene, nutritional physiology, and other branches of medicine.

In his speech at the First Congress of National Economic Councils held in May, 1918, Lenin noted: "Only socialism makes it possible to widely disseminate and properly to subordinate the social production and distribution of products on a scientific basis with respect to how to render the life of all working epople easier and to provide them with the possibility of well-being. Only socialism can carry this out." (1)

Under socialism, social production is organized on a scientific basis in accordance with the requirements of the basic economic law and the law of planned (proportional) development of the national economy. National economic plans serve as a device for the scientific organization of production. Public consumption is also organized on a scientific basis. The distribution of material goods, as a connecting link between production and consumption, is subordinated to the task of building a communist society. An increase in the living standard of the working people becomes one of the most important aspects of economic planning. Expenditures for social and cultural measures represent about one-third of all expenditures in the state budget and the bulk of expenditures in the budgets of the trade unions. However, the plan and the budget must rest upon scientific calculations in order to look forward into the future. This is the concern of the economics of public consumption. In our opinion, this should have three component parts:

(1) family economics and household life, standards of consumption by the family of items of personal consumption in accordance with the level of income;

(2) the living standard of the working class and the collective farm peasantry by groups of families;

(3) the people's consumption as a factor in expanded socialist reproduction; incomes and consumption as they balance out.

Each of these divisions represents an investigation of the actual situation existing and calculations for the future.

The development of the people's consumption requires, in addition to current expenditures, a certain level of capital investments for the creation and expansion of the social components in consumption. It is essential that all expenditures be based upon the principle of the most efficient investments of material and monetary funds for the purpose of increasing the well-being of the people. It is necessary to seek optimum variants. Calculations on the basis of theoretically valid assumptions and a balanced matching of available resources and consumption constitute the method of the economics of public consumption.

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Under socialism, as under capitalism, the social product and the national income are created by personnel in the sphere of material production. However, under socialism the entire social product and the entire income of society belong to the working people, whereas under capitalism the owners of means of production, the exploiting classes, appropriate the bulk of the national income.

The working population of socialist society is engaged in two spheres — the sphere of material production and the unproductive sphere. The labor applied in both spheres is socially useful labor. However, only the labor of those engaged in the sphere of material production may be deemed productive labor in the economic sense; it is only their labor that creates the social product and the national income. The development of material production, and in the first place the production of means of production, is of fundamental and decisive significance for the building of a new society. We know that the value of the total social product is $P = c+v+m$. The portion c represents the value of means of production transferred to the product as a result of their expenditure in producing the social product. The portions v and m represent the value newly created by labor in the sphere of material production. This portion of the social product constitutes the income of society, the people's or national income. In terms of its natural components, the social product is composed of means of production and consumer goods.

The national income produced is broken down as a result of primary distribution into the incomes of persons engaged in material production, and the income of state and cooperative enterprises (including collective farms). Primary distribution is employed to set up: a fund for satisfaction of social needs and a fund for the satisfaction of the personal needs of individuals engaged in material production. The second fund includes material goods placed at the disposal of personnel in the sphere of material production as the result of payment for their labor (wages, the

payment for labor in the collective farms) in accordance with the economic principle of payment in accordance with labor.

The first fund is divided into three funds:

(1) An accumulation fund (the increase in fixed capital, the increase in circulating capital in the form of material goods and reserve supplies in state and cooperative organizations, including collective farms).

(2) The fund for satisfying the personal requirements of individuals in the unproductive sphere (it is from this source that personnel in government administration, the military, the staffs of educational institutions, medical personnel and the like are paid, in accordance with the economic principle of payment for labor contributed).

(3) The social fund for consumption of tangible material goods. The goods in this fund are distributed through grants-in-aid to students, pensions, assistance to husbandless mothers and mothers of large families, and other benefits and payments, as well as in the form of grants-in-kind. This same fund includes current "consumption" (the annual depreciation) of buildings, structures, technological equipment, etc., designed for the joint satisfaction of needs (schools, sanitary installations, etc.).

The material goods constituting the social fund are distributed primarily in accordance with needs, but pensions also serve as a form of distributing material goods in accordance with the nature of past labor, whereas stipends, to the degree that they are granted as a system of rewards, depend to a certain extent on the labor expended. Grants to husbandless mothers or those having large families are based on the needs of the family. It is important to take into consideration that grants and payments out of the social fund are established, at the present stage of the building of communism, not in accordance with need, but as a result of need. This distribution of material goods represents a certain degree of approach to communist distribution in accordance with needs, but is not identical with it.

Along with the consumption of material tangible goods, consideration must also be given to the consumption of services which are material in nature but are not tangible. A service is not a product in tangible form, but, in the connection in which we are examining it, it is an activity directed to raising family living standards. The principle of distribution in accordance with needs is realized to the highest degree in the distribution of free services by the government (for example, in the education of children and in medical care). Here we encounter the highest degree of approximation to the communist principle of distribution in accordance with needs. Although services do not fall into the scope of national income, their original source is the national income. Free services to the population are extended by the personnel of children's institutions, teachers, doctors, and other persons. The major source of their salaries is the fund for the satisfaction of social needs formed as a result of the primary distribution of the national income. The significance of services in living standards is quite substantial. They very definitely and tengibly increase the living standards of working class families.

Thus, the social consumption fund includes, in the broader sense, goods in material form created by labor in the sphere of material production, and benefits in the form of services created in the unproductive sphere. Unlike services, material goods in tangible form are capable of being accumulated.

We have already spoken of the accumulation fund in the socialized economy. It must be borne in mind that the wages of personnel in the sphere of material production and in the unproductive sphere and the monetary incomes of collective farmers are not entirely expended on the purchase and consumption of products during the same year in which they are received. A portion of this income is spent for services (seeing the movies, theatre, passenger transportation, etc.). A portion goes into individual accumulation funds — the building of homes, the accumulation of consumer durable goods, a growth in savings, etc. On the other hand, the goods consumed in a given year come not only from the national income of that year but also from social and individual accumulation funds.

After consideration of the foregoing, the composition of the individual consumption fund and the social consumption fund may be represented, schematically, as follows.

(1) Individual consumption fund:

(a) consumer goods included in the national income of the given year;

(b) consumer goods drawn from the individual accumulation fund, equal to the annual depreciation (annual consumption);

(c) paid and partly paid services (equal to the paid portion alone).

(2) The social consumption fund:

(a) consumer goods included in the national income of the given year;

(b) consumer goods drawn from the social accumulation fund, equal to the annual depreciation (annual consumption);

(c) free and discount services.

There exists an objective foundation for the formation of the individual consumption fund and the social consumption fund. The individual consumption fund is based, as we have noted, on the principle of payment in accordance with work. The social consumption fund, in the first place, satisfies such requirements as are typical of socialist society as a whole, but which cannot be satisfied out of individual incomes, i.e., out of wages. Thus, for example, the need for housing is a social need. The state provides apartments to working people, and the payment for the use of these apartments does not even cover depreciation charges. The same situation holds for other material items — sanatoria, rest homes, hospitals, clinics, children's institutions, and schools. All of them come out of social consumption funds consisting of material goods in tangible form. The utilization of material goods and services in these institutions may either be free, or paid for frequently on a discount basis.

The social fund satisfies the needs related to the material support and the upbringing of generations not yet participating in social production (for example, family grants to large families), and also material benefits to generations that have ceased to participate in the production efforts of society (pensions). This same fund satisfies the needs for maintenance of the health of working people (medical aid). The principles of formation of the social consumption fund carry the imprint of the high morality of the new society, the imprint of a high humanism and mutual aid by the members of society.

The forms of distribution of the national income, the scale and degree of utilization of social consumption funds in the interests of the working people, have a direct effect on the living standard of the population.

With respect to the conditions of a capitalist economy, the concept "living standard" represents that combination of material and cultural goods which the working class has succeeded in winning from the exploiting classes. Extreme instability and lack of confidence in the morrow are characteristics of the social conditions under which workers and peasants live in the capitalist countries. A striking

picture of the sufferings and distress of the proletariat in the United States was drawn by speakers (very far from being communists and even hostile to them) at the one-day conference on unemployment held on April 8, 1959. For example, Senator Paul Douglas stated: "What barbarism it is to permit people to starve when our warehouses are bursting with foodstuffs!" According to data presented at this conference, there were about 5 million unemployed in the United States in April, 1959 (not counting those who were employed less than a full week).

As applied to the conditions of a socialist economy, the concept "living standard" pertains to the level of material well-being and cultural advancement attained by the working people. Under socialism, the living standard of the working people is secure. The worker is not threatened with unemployment, poverty and pauperism in case of illness or when he grows old, as the state aids him and his family through the system of social insurance and maintenance. The ever more complete satisfaction of the material and cultural needs of the working people, based upon the rise in the productivity of social labor, is a characteristic of the living standards of the peoples of the socialist countries.

Man is a part of nature, but his requirements are socially conditioned and recognized. They develop among working people in the course of their work and social relations. It is only labor that makes man's existence fully valuable and harmonious. Socialism abolishes the exploiting classes and their anti-social needs, and opens up the broadest possibilities to the working people for free labor for the good of society.

Under capitalism an irreconcilable and antagonistic contradiction exists between consumption and production, due to the operation of the law of surplus value. The needs of the working people are not and cannot be satisfied. According to the understated calculations of the bourgeois economist Hauthacker, published in Econometrics in October 1957, the degree to which the working people's need for food was not met rose by 11.5% in the fifty years from 1901 to 1950.

Under socialism a new relationship is established between production and consumption. The most complete satisfaction of the rational material and cultural requirements of the working people is the determining motive of production. However, as the increase in requirements proceeds more rapidly than does the growth of production, while needs taken in their totality are satisfied incompletely, a contradiction between production and consumption remains, although the nature of this contradiction undergoes a fundamental change; it becomes non-antagonistic. Gradually, with the development of the forces of production, socialist society fully satisfies an ever-increasing number of needs, starting with the most pressing — food, housing, clothing and footwear, upbringing of children and medical aid. The growth of people's needs never ceases. New social needs will always develop, particularly in the spheres of culture and science. However, the development of the forces of production also never stops. Society, in the not-too-distant future, will create, on the basis of the growth in the forces of production, material resources adequate to satisfy the growing requirements of its members at a very high level indeed, but the possibility of completely satisfying them will come into being only under communism.

It is clear from the foregoing that one cannot hold that living standards are completely determined by the national income of any given year. Of considerable importance to living standards is the accumulated national income embodied in the national wealth, representing the totality of the tangible conditions for material well-being of the working people. Specifically, the national wealth includes those social funds for the joint satisfaction of needs which are consumed by the population annually, and which are increasingly added to from the national income each year. Of considerable significance is the property accumulated by the population itself. We have in mind such things as cooperative apartment houses, collective orchards, as well as furniture, clothing and other consumer durable goods.

The living standard in the socialist countries is of a higher social type than that in the capitalist countries, inasmuch as the exploitation of man by man has been eliminated in the socialist countries, stability of living conditions has been achieved, and improvement therein is continuous. However, this does not mean that certain factors, such as living conditions, may not be superior in some capitalist countries up to a given time. Having in mind the fundamental and decisive advantage of the living conditions of the working people in the socialist countries over those in the capitalist countries stated above, one may suggest some of the most important indices required for a more specific, categorized description of living standards of the working people in socialist and capitalist countries. These indices may be divided into five groups:

(1) social conditions of labor, and, specifically, the length of the working day;

(2) real incomes, real wages and other forms of income (pensions, grants-in-aid to students, etc.);

(3) consumption of tangible material goods such as food, clothing, shoes, other personal consumption items, housing and service facilities;

(4) utilization of cultural goods and satisfaction of spiritual needs, the upbringing of children, schools, education, professional training, science, art, etc.;

(5) health, longevity, the reproduction of the generations of working people.

These indices are suitable for international comparisons but in performing such comparisons we must proceed from a fundamental criterion: the fact of the basic superiority of the socialist governmental and social structure over that of the capitalist governmental and social structure. These advantages are expressed in the social conditions of labor and in the entire way of life of the working people. In particular, only under socialism are broad prospects for the acquisition of scientific and cultural knowledge and their creative advancement available to the working people. In a comparative study of the living standards of the working people in socialist and capitalist countries, this important fact cannot be ignored.

In the USSR and in the other socialist countries the social consumption fund plays a most important role in determining living standards. As a result of the establishment and expansion of this fund, we have now basically solved the problems of maintenance in old age, free medical care, public education and the training of personnel. The housing problem, the problem of liberating women from housework, which produces so little, and the problems of the social upbringing of rising generations will be solved in the USSR in the years immediately ahead.

We distinguish between two concepts of living standard: that which has been attained, i.e., the real, and that which is envisaged, that is, a hypothetical, planned, prospective living standard. The elaboration of a scientifically-founded hypothetical living standard is one of the most important problems confronting the science of public consumption. All calculations pertaining to this subject are designed for utilization in the elaboration of the national economic plans.

A scientific approach to the study of consumption absolutely excludes the undifferentiated "average" approach as inherently invalid. The method of indiscriminate averages is not a scientific method. In his work The Agrarian Question and the Critique of Karl Marx Lenin wrote: "These data affirm and reaffirm how invalid are indiscriminate references, and how false are all calculations of income that ignore differences in living standards." (2) Lenin's point retains fundamental methodological significance under our conditions as well. The science of public consumption faces the problem of a differentiated study of the level of consumption based on groups of families of workers, office personnel, and collective farmers. In the majority of cases the basis of the grouping should be the joint income of the family unit per member of the family, or per consuming unit. (3)

The basic source of income in all families of workers and office personnel (except those of pensioners) consists of wages. The incomes of all these families are identical in the social sense in that they are based on labor. Differentiation of family incomes is determined essentially by differences in wages and differences in the composition of the family. A study of actual data on this matter enables one to establish the following regularities as typical of our economy:

(a) the differentiation of workers and office personnel by wage levels is greater than the differentiation of workers' and office personnel families by total family incomes;

(b) a major factor in reducing differentials as we move from the wages of individual workers and office personnel to the total incomes of their families consists of the social and cultural measures of the Soviet government and expenditures from the social consumption fund;

(c) the direction of development is toward reducing differentials both with respect to the wage levels of working people and in terms of total family incomes of workers and office personnel, with the latter process proceeding more rapidly than the former.

These are specific regularities of the socialist economy. Under capitalism there are enormous differences in income levels, and what is more, the gap separating the class of exploiters and the working class is becoming ever greater.

A study of materials pertaining to the living standards achieved by working class families is one of the most important factors in the calculation of standards for personal consumption. Here and hereafter, the term "consumption standard" will be understood not in terms of a rigid rationed amount as was the case when we had ration cards, but in the sense of a computed characterization of actual consumption, and in the sense of a desirable level to be attained in the course of fulfilling the national economic plans.

The development and validation of long-range family consumption standards for foodstuffs and industrial commodities is an extremely important part of consumption economics. The experience accumulated in planning the economy has made clear the need for establishing two interrelated types of long-range standards, to wit: a standard representing the complete satisfaction of family needs, and a standard of adequacy attainable under conditions when there are still some material shortages that remain to be overcome. In the development of both types of consumption standards it is necessary to take as the point of departure the fact that a gradual socialization of household living will develop hand in hand with the all-out building of a communist society. The standards of complete satisfaction of needs will serve as a point of orientation and a benchmark in developing all hypotheses concerning the increase in public consumption. Specifically, they will assist in developing standards of adequacy as approximations, within certain limits, to the complete satisfaction of needs. The situation is not to be understood as one in which standards of adequacy will first be realized, and then, after a given period of time, standards of abundance will be met. In reality, the process is a more complex one. Thus, the need for breadstuffs is today met in full, something that we cannot say of fruits, for example. Standards of complete satisfaction of human food requirements have been developed by the Institute of Nutritition of the Academy of Medical Sciences of the USSR. The Trade Research Institute also has draft standards of complete satisfaction of requirements with respect to clothing, footwear, etc. Both sets of standards will undergo correction on the basis of new scientific data. The Institute of Labor is elaborating the problem of the long-range family budget in its entirety, i.e., with consideration of total incomes and expenditures for all items.

The objectives of the Seven-Year Plan for a number of foodstuffs and manufactured items are not based on standards of complete satisfaction of needs, but on somewhat lower standards, inasmuch as material limitations will not make it possible to attain the level of abundance by 1965. In calculating the standards of consumption of consumer durable goods, it is necessary to establish reasonable dimensions of family holdings of such consumer items (that is, in the clothes closet and other property constituting the family inventory), and further, it is necessary to establish rates of wear and tear of consumer durable goods year by year. The quotient arrived at by dividing the former of these magnitudes by the latter will constitute the standard for annual purchases, which, expressed in money with proper consideration of current price levels, will enter the family expenditure budget.

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Fulfillment of the Seven-Year Plan for the development of the national economy will substantially improve the population's food supply, particularly in products such as milk, butter, meat, sugar, vegetables and fruits. Soviet people will be adequately supplied with good-quality and attractive clothing and footwear. There will be a substantial expansion in the production of furniture, household equipment and machinery, commodities in the field of culture, and children's wear. A vast program of housing construction will be carried out, and this will create the basis for a fundamental improvement in household living conditions. The real incomes of workers and office personnel per capita and the real incomes of collective farmers will rise by 40%. The wages of workers and office personnel will be adjusted in all branches of the economy. The wages of the low and medium-paid workers and office personnel will rise more rapidly, and the spread in wages between the low and medium-paid personnel on the one hand, and the highly-paid people on the other, will diminish as a result. In about five years after 1965, the USSR will exceed the level of production of the United States per head of population, and this will assure the world's highest living standard. The growth in the wages of low-paid workers and office personnel will proceed not only as a result of direct increases in pay for the labor of persons of given skills, but also as the result of changes in skill, changes in the nature of labor due to all-round mechanization, improvement in skill and the consequent improvement in labor productivity.

Low-paid labor is labor of low productivity for the most part. By way of example, let us consider data on 87 enterprises in the cotton textile industry collected by A. F. Kokhova, a research associate at the Labor Research Institute.

These enterprises had 8,500 persons with relatively low wages (as compared to other trades) in 1958.

A study of the question showed that upon the introduction of all-round mechanization, 6,000 of these 8,500 people could be transferred to other, more highly-paid jobs. The number of spool strippers could be reduced by three-fourths, the number of cleaning women by half, the number of unbleached-goods cleaners by two-thirds, the number of yarn receivers by half, the number of heald stitchers by half, the number of goods straighteners by four-fifths, the number of dye and materials weighers by 30%, the number of unbleached goods inspectors by 15%. There would be no fabric checkers, no persons engaged solely in calling loom operators, no goods sizers, no sewers, folders or label pasters.

If we make matters clearer by employing unity to represent the wage spread in 1957, we will get the following picture of the decline in differentials in wages and total incomes in 1965 (hypothetical calculations of Labor Research Institute):

	1957	1965
Wages	1.0	0.67
Total income	0.9	0.64

These figures show that income differentials are smaller than wage differentials in our country. This stems from the fact that there is a second earner in the family and also because the social and cultural measures of the Soviet government and the trade unions tend to reduce differentiation in incomes.

The rise in the real earnings of workers and office personnel during the Seven-Year Plan will be due not only to a growth in money income but also to price reductions, primarily in public catering.

During the current Seven-Year Plan the utilization of social funds for satisfaction of needs will take on new organizational forms. The role of social organizations will increase sharply. In trade, public catering, and personal services, the latest in technology will be introduced, and small handicraft enterprises will gradually yield place to larger ones having good equipment and a broad network of pickup and delivery stations and branches. These two features will be particularly pronounced in the development of the public catering industry. The majority of workers, office personnel and students will be provided with restaurant-prepared food.

Public catering will take on a new organizational form during the current Seven-Year Plan. The specific directions in which it will develop during the years immediately ahead have been defined in the resolution of the CC CPSU and the Council of Ministers of the USSR, "The Further Development and Improvement of Public Catering." The resolution, published February 28, 1959, notes that it is desirable to convert public catering places to the use of semi-finished materials to be prepared in specially organized shops, factory kitchens, or at enterprises of the meat-and-dairy and foodstuffs industries. Let us call these supply factories. In the years immediately ahead, the most important link in the entire system of public catering will become the large-scale supply factory, with equipment representing the last word in technology.

The resolution of the CC CPSU and of the Council of Ministers of the USSR notes that local party, government and trade union organizations are required to maintain daily monitoring of the work of public catering places, and to take prompt steps to eliminate shortcomings in their operations and to achieve improvements in service to the customer. It may be stated without exaggeration that, where this is properly organized, public monitoring will play a decisive role in improving the quality of the products of public catering enterprises, as well as in improving service.

We know that about 15 million apartments are to be built in the coming seven years out of state capital investments and the people's savings, assisted by government credit.

In rural areas, the collective farmers and rural intellectuals are expected to build about 7 million homes. Economical and well-designed apartments, each to serve a single family, will be erected in both town and country.

Boarding institutions, and specifically homes for the aged, will undergo a substantial expansion during the current Seven-Year Plan, and this, taken together with the construction of new apartments, will also improve living conditions.

In March, 1959, the CC CPSU and the Council of Ministers of the USSR adopted a resolution on measures to improve household services to the population. This resolution, adopted by way of realizing the decisions of the 21st Congress of the CPSU, defines steps to be taken by government and public agencies in the near future in an exceedingly important sphere. The resolution notes that the level of household services currently available lags substantially behind the people's growing demand. This lag has to be done away with in the briefest possible time.

We proceed from the desirability of developing a variety of services and children's institutions at the places where their parents work, as well as a territorial network near the residences of workers and office personnel. We believe that, in addition to satisfying the demands of individual families for various types of household equipment that will ease the housewife's work, the Seven-Year Plan should see a considerable expansion of enterprises equipped with the most productive machines for collective use. Simple calculations show that this is the more efficient procedure from the point of view of the national economy, as machines for collective use will be fully employed, unlike machines for individual use. Soviet "service" in the sphere of household needs must be raised to the highest possible level. All the material prerequisites for the solution of this problem are available or can readily be created. Until recently, the organizational side of this matter was its weakest aspect. The local Soviets and trade unions had done little to involve the population in organization of the necessary household services.

Service enterprises are exceedingly varied in type, but they all serve a single purpose — improvement in living conditions. The workers and office personnel populating a given housing area are the persons most interested in achieving this. This interest should serve as the basis for their active participation in the solution of household service problems. It is desirable that elective commissions (or committees) on household affairs be set up in order to monitor the functioning of all neighborhood enterprises serving the day-to-day needs of the residents of a given housing project. These committees will be agencies for providing practical assistance to the local Soviets and trade union organizations in their work to improve the living conditions of the working people. In this or some other form, which will be dictated by life, organized collective participation of the residents in the solution of housekeeping problems is most desirable and even essential,

nasmuch as the direction of development is toward gradual collectivization of household activities, by which we mean he collective upbringing of children and the collective satsfaction of many other household living needs. Servicing of the needs of the working people at their places of residence will take on an ever more comprehensive nature within the framework of the housing projects (micro-districts) nto which the territories of the local Soviets will be subdivided. Led by the Soviets of Working People's Deputies, he population of these housing developments will be able to play an ever increasing role in organizing the work of the household service enterprises and in monitoring their operations.

We suggest discussion of the desirability of organizing area centers for housekeeping services. A housekeeping center would be an agency of the local Soviet of Working People's Deputies. It would coordinate and guide the work of the building managements (or development offices), and of all enterprises engaged in servicing housekeeping needs within a given housing development. In the area under its jurisdiction it would provide adequate shopping services, public catering, housekeeping services, and would also be entrusted with organization of healthy recreation — collective gardening and fruit raising, collective building of summer cottages, etc. In its work the housekeeping center would base itself on the support of the development managements and on the active core of residents, i.e., on the elected commissions discussed above. A housekeeping center would not be an institution in the usual sense of the word. Its core would consist of a group of members of the local Soviet (3-5 persons) living within the given housekeeping development. Their obligations in terms of leadership of the housekeeping centers would be fulfilled as part of their duties and prerogatives as deputies, and they would perform this work in addition to whatever their jobs might be in an enterprise or office.

Area-wide institutions concerned with the upbringing of children include: kindergartens, day nurseries, the school and attached boarding school, the Young Pioneer Camp serving the given school, the children's club or children's section of the community center. As is the case with institutions having to do with housekeeping, these institutions in he field of upbringing serve the objective of partial collectivization of living conditions. However, their objective is of a higher order and their problems are incomparably more complex than is the case of the housekeeping agencies. Children's institutions function under the inspection of parents' councils. The role of the latter must be strengthened. The housekeeping and children's institutions serving given areas should significantly ease the household work of women in the family, and particularly of the mothers of young children.

A special examination of the problem of raising young children (up to 2 years of age) is needed. In our opinion, f it is not possible to place an infant in a day nursery, it would be desirable to grant working mothers a long leave, one or two years in length. It would be desirable if this eave for the mother for the purpose of training her young nfant until it reaches the age of tow would be added o her service record, and that her job would be saved by her.

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When one considers all resources in tangible form, all he services entering into the individual consumption fund nd into the social consumption fund, and if one gives due consideration ot the trends of development that are manifesting themselves as regularities here (the movement in he direction of collectivization of daily life), it then becomes possible to calculate the actual and prospective balance of income and consumption. Calculation of this balance sheet represents the most important and central problem of the science of public consumption. This balance sheet must not be merely an over-all summary; it must be differentiated by groupings of working-class and collective-farm families. It must shed light on those aspects of the life of the working people that determine their living standards.

The practical significance of such a differentiation balance-sheet is of extreme importance. It is needed to give precision to plans for the production of goods for individual consumption, housing, trade turnover, volume of business by public catering places, savings deposits planning by the State Bank, development of the network of household and child training institutions, etc. In the long run, the consumption balance-sheet, as well as all other compilations and hypotheses made by the science of public consumption, are designed to find the best means of distributing tangible goods and the best way of organizing their consumption so as to satisfy the continually rising material and cultural requirements of society as a whole, this being the objective of socialist production.

Under the existing conditions of the building of communism, the principle of "from each according to his abilities, to each according to his work" remains the basis for the distribution of material goods. Equalitarian distribution would lead to a dissipation of accumulated wealth and would harm the building of communism. However, our party is consistently pursuing a policy directed at eliminating unjustified differentials in earnings, and toward a more rapid increase in the living standards of the families currently less well provided. Under these conditions, a study of living standards by family groupings in various income brackets becomes a prime necessity, as does the elaboration of planned measures by family groupings. Differentiation of family budgets should serve the same purpose. We particularly emphasize the term differentiated because a general family budget has been followed for many years, although this alone is inadequate. In addition to the differentiated income and expenditure budget, the time budget for the working people of town and country should undergo profound study. As a result of the realization of the objectives of the Seven-Year Plan, the USSR will have the world's shortest working day and shortest work week. The time budget should serve the purpose of organizing the most valuable, healthy, interesting and cultured recreation for the working people. The time budget should also serve the purpose of easing housework, and in the first instance, the labor of women having young children.

The decisions of the 21st Congress of the CPSU have illuminated problems of the political organization of society, government organization and administration during the period of all-out building of communism in exceptionally clear and profound form. We should like to emphasize the exceedingly important proposition that social organizations will play an ever greater and increasing role in managing the social funds of public consumption. The chief feature of this process implies that state functions will gradually be handed over to social organizations. From the practical point of view, this process will lead in the shortest possible time to an all-round improvement in servicing the population through social consumption funds.

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(2) V.I. Lenin, Collected Works, Vol. 5, p. 167 (Russian edition).

(3) For greater detail on this, see the article in Sotsialisticheskii Trud, 1958, No. 2.

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Growth of the US National Debt

In recent years the American economy has found itself faced with heavy budget deficits. The depression of 1957-1958 resulted in a drastic reduction of revenue from taxation. In the fiscal year 1958-1959 receipts from taxation were some six billion dollars short of expectations. At the same time the unceasing armament race led to a fresh increase of the already burdensome military expenditures. Compared with 1957-1958, federal military appropriations for 1958-1959 were up by about two billion dollars. Expenditures on the so-called "anti-depression measures" also increased.

As a result the US budget deficit, equal in 1957-1958 to 2.8 billion dollars, jumped to 12.5 billion dollars in 1958-1959. This was a figure unprecedented throughout the post-war period, including even the period of the Korean war.

There is nothing surprising, therefore, in the fact that the national debt of the US has greatly increased in recent years. At the end of the 1958-1959 fiscal year it amounted to about 285 billion dollars. (1) During the last two fiscal years the national debt went up by 14.5 billion dollars, reaching the highest figure ever recorded in the history of US government credit. The US at present holds first place among the capitalist countries not only in absolute size of national indebtedness but in per capita indebtedness as well.

Of interest, however, is not only the dynamics of the national debt but also the change in its structure.

Structure of US National Debt
(billion dollars)*

	1946	1950	1957	1959
Total value of government bonds	268.1	255.2	268.5	281.8
Including:				
Special issues**	22.3	32.4	46.8	44.8
Non-marketable issues***	56.2	67.5	65.9	59.0
Marketable issues	189.6	155.3	155.8	178.0
including those due within five years	97.1	94.2	118.2	131.2

* The figures refer to the end of the respective fiscal year.
** "Special" issues are those intended for distribution only among government bodies, government insurance, pension and similar funds.
*** "Non-marketable" issues, as distinct from "marketable," are government securities which are not allowed to circulate freely on the securities market.

Sources: Statistical Abstract of the United States, 1958, pp. 390-391; Treasury Bulletin, August 1959, p. 26.

During the post-war years the share of special and many forms of non-marketable securities in the total mass of US government obligations has grown. Special and non-marketable issues accounted for 29% of the national debt in 1946, 39% in 1950, and 42% in 1957. But the special and non-marketable issues (with the exception of the Treasury investment series) are short-term securities, payment of which must be made on demand. Hence, an ever growing part of government obligations may be presented to the Treasury for payment at any given time. (2)

As for the other part of the bonds, the marketable part, certain changes have developed here too, indicating a deterioration in the structure of the national debt. We are referring to the increase in the share of short-term indebtedness. The average term of "marketable" government bonds, as calculated by American financial statistics, was reduced from 75 months in December 1946 to 51 months in December 1954 and to 43 months at the end of the 1956-1957 fiscal year. (3) At the end of 1945-1946 bonds of up to five years' duration constituted half (51%), and at the en of 1956-1957 more than 2/3 of all marketable issues, whi those limited to one year covered more than half the total in 1956-1957. (4)

The fact that the growth of the national debt is accompanied by an increase in the share of short-term bonds makes the financial position of the government even more acute. While heavy budget deficits involve the issue of many new bonds, the short-term structure of the government's indebtedness means that a vast amount of old issu are being presented for repayment each year. Being unabl to meet this demand, the Treasury resorts to the money market and places on it new bond issues to cover those a ready expired. This exchange cannot be effected automat cally, however. The success of this operation depends

each time on the financial position of the government's creditors and the state of the credit market, or in other words, on the conditions of reproduction of social capital at the given time.

Manifestations of the 1957-1958 Depression in the Sphere of Government Credit

The growth of short-term indebtedness forced the Treasury in 1957-1959 to resort on a particularly wide scale to the policy of replacing the government bonds due for short-term payment by new long-term bonds. This operation seemed to promise success as the economic crisis put the owners of loan capital in a mood to seek safer spheres of investment. As during the preceding depressions, the Treasury again attempted to distribute large issues of long-term bonds. The total value of the long-term bonds offered by the Treasury in the 1957-1958 fiscal year approximately equalled the entire sum of long-term bonds issued during the preceding 12 years. (5)

What were the real possibilities, however, for increasing the sale of long-term government bonds?

The growth of the demand for government bonds was largely speculative in character. This had to be admitted later by the US Treasury Department which politely referred to the bond speculators as "temporary investors." The drastic increase in broker's loans in the summer of 1958 was reminiscent, according to the American press, (6) of the peak of the stock exchange boom on the eve of the 1929 crisis.

As for the basic government creditors, their financial position was substantially weakened by the depression. This applies, for instance, to the government insurance and pension funds. The distribution of large blocks of government bonds among these funds in the post-war years has enabled the US Treasury to counteract in large measure the unfavorable effects of the unloading of Treasury bonds by insurance and credit institutions and to effect a concealed consolidation of part of the national debt. The share of the bonds distributed among the government insurance, pensions and other funds amounted to 10.8% of the total national debt in 1946, 14.8% in 1950, and 20.7% in 1957. (7) However, the depression of 1957-1958 and the consequent increase in unemployment resulted in heavier expenditures of the social insurance funds and a drop in their receipts. As a result, investments of these funds in government bonds dropped from 2.3 billion dollars in 1956-1957 to 0.2 billion dollars in 1957-1958. (8) The expenditures of the government insurance funds exceeded their receipts in 1958-1959, forcing the fund administration to present for payment part of the government bonds held by it.

The financial position of small savings holders has also deteriorated, as evidenced by the fact that in recent years the presentation to the government of E and H series bonds for payment has exceeded their sale by the government. (9) The value of the savings bonds sold, which increased by 700 million dollars in 1954-1955 and 500 million dollars in 1955-1956, decreased in subsequent years. During the 1956-1957 and 1957-1958 fiscal years, the value of the savings bonds redeemed exceeded the value of savings bonds sold by about 600 million a year. (10) The redemption of government savings bonds continued in the following year too. By the middle of 1959 the difference between the sales of savings bonds by and to the population, i.e., the "net" redemption of these bonds by the population, had reached 250 million dollars a month. (11) It is characteristic that a large part of the savings bonds presented for payment represent issues whose final maturity date has not been reached.

The depression led to a dislocation in the ordinary circulation of capital of the corporations, which are among the government's largest creditors. In search of cash to meet pressing payments, non-financial corporations and private individuals disposed of 5.5 billion dollars' worth of government bonds between August 1957 and July 1958.

After the war large quantities of government bonds were distributed among the state and municipal authorities. Along with the government insurance and pension funds, the state administrations and local authorities were among the biggest buyers of government securities. However, under the blows of the economic depression many states (Michigan, New York, Pennsylvania, Massachusetts, etc.) and municipalities found themselves on the verge of bankruptcy (12) and were forced to sell these bonds instead of buying them. During the year ending September 1958 the state and municipal authorities, far from increasing their investments in government bonds, as they had done in previous years, actually decreased their holdings by a total of 200 million dollars. (13)

Thus, the selling of government securities was caused by an intensification of the contradictions of capitalist reproduction, which led to the deterioration of the financial position of many of the government creditors. "... What appears as a crisis on the money market is in reality an expression of the anomaly in the very process of production and reproduction," remarked K. Marx. (14)

The only big subscribers to government bonds were the banks. But the commercial banks, too, displayed no desire to freeze a large part of their funds in long-term government securities. In March 1958 the Wall Street Journal, the organ of big business, wrote: "Bankers and brokers are insisting chiefly on the shortest possible terms for government bonds." (15)

The huge mass of government securities thus had to be squeezed into the framework of the greatly shrunken demand from the majority of government bankholders. Besides, the speculative stock exchange boom which followed the fall in stock quotations (beginning with the summer of 1958) diverted some of the capital away from government obligations. A situation arose which The Nation magazine described as follows: "At the moment when storm signals appear on the horizon, the government's creditors remove their umbrellas, leaving the Treasury unsheltered." (16)

When the money market experiences a strain, any rise in the interest rate on loan capital cannot help but lead to a fall in the price of government securities. The selling of bonds prompted by a search for cash to meet obligations and by depreciation of government securities gave the decline in the price of such securities a sharp and prolonged character. Analyzing the movement of stock quotations, K. Marx noted: "During periods of constraint on the money market such securities must decline in price for two reasons: first, because the rate of interest rises, and secondly, because they are dumped on the market en masse to be realized in cash." (17)

In June 1958 serious difficulties were encountered in the distribution of 2-5/8% interest-bearing bonds issued for a period of six years and eight months. Apprehensive that the bond issue might fail, the Treasury did something quite extraordinary, acquiring 600 million dollars' worth of the government bonds to maintain their price. (18) Such peculiar "participation" of the Treasury in the distribution of its own bonds was a sign of a serious weakening of the position of government securities on the credit market. In an attempt to reassure the holders of government bonds the

Treasury announced that in the future only short-term securities would be issued and officially confirmed the purchase of bonds by itself.

However, neither the purchase of its own bonds by the Treasury nor the assurances that bond prices would remain stable could help to improve the position of the government issues on the market. The fall in Treasury bond prices continued with added force. "The Treasury fired its shot but the market completely failed to respond to it," commented The Magazine of Wall Street. (19)

In July 1958 the Treasury was forced to begin distributing short-term bonds and to substantially raise the interest rate on the new issues. In face of the serious threat to the position of government securities the Federal Reserve System was summoned to the aid of the Treasury. (20) In July 1958 the Federal Reserve, in addition to exchanging the government bonds held by it for new ones, made a supplementary purchase of new bonds in the amount of 1.2 billion dollars. (21) But neither the measures taken by the Treasury nor the heavy buying of bonds by the Federal Reserve proved sufficient to stop the sale of bonds by the public. Later, while giving evidence to a Congressional economic committee, W. Martin, Chairman of the Federal Reserve Board of Governors, was obliged to admit that the attempt of the Federal Reserve to support the price of government bonds had actually produced the "opposite effect" by increasing the investors' distrust in the Treasury obligations. "All are sellers and there are no real buyers," is the way Business Week described the situation on the government bond market. (22) The American press stressed "the general lack of investors' interest in government bonds." (23) Some 2.8 billion dollars' worth of bonds were presented to the Treasury for repayment. Taking into account the bonds offered for sale and acquired by the Federal Reserve, we find that despite the strong support given to government bonds by the Treasury and the Federal Reserve, the value of the bonds sold when payment on them was due amounted to about half the total value of the bond issues distributed among non-banking investors. (24) Never since the end of the war had the share of government bonds due for repayment and sold by the public been so large.

Growing Instability of Government Credit in the US

In view of the weakening of long-term securities and the fear of further depreciation of the dollar many holders of long-term government obligations are seeking to replace them by short-term securities. The British journal Economist, assessing the chances of the issue of long-term bonds by the US Treasury, wrote that this might lead to a "situation in which government bonds would prove to be the least secure of all existing investments." (25)

In July 1958 the Treasury was compelled to embark upon the policy of issuing bonds with the shortest terms of redemption. It began by issuing a large number of tax certificates effective for a period of 7-8 months. In addition, the Treasury, with the support of the Federal Reserve, sharply stepped up the issue of three- to six-month Treasury bills. By May 1959 the Treasury had distributed 34.9 billion dollars' worth of such bills, the value of which had thus been more than trebled over the past decade. Even during World War II the sum of Treasury bills issued did not exceed half this value. The mass of short-term Treasury bills was thus swelled and the short-term indebtedness increased.

The American government has failed to solve the acute problem of consolidation of the national debt in this way. Out of the total amount of government bonds issued in the 1958-1959 fiscal year prior to April 1, 1959, about 85%, or more than 50 billion dollars' worth, have to be redeemed in 1959-1960. Despite a considerable increase in the rate of interest and easy terms of payment by installments, only 2.5% of all government securities were sold in the form of long-term bonds. (26)

Hence, the structure of the US national debt has in recent years deteriorated further. While at the end of the 1956-1957 fiscal year the value of the marketable government securities payable within five years or less was 118.2 billion dollars, at the end of the 1958-1959 fiscal year it had risen to 131.2 billion dollars, as the table on the following page shows. One-year bonds and bonds payable on demand accounted for half the total government indebtedness at the end of the second world war, and for about two-thirds at the end of 1958-1959. This means that the Treasury must be prepared to meet an even greater demand for cash in payment for bonds presented by the public.

Heavy selling of government bonds by the public continued in 1959 too. While in December 1958 Treasury bondholders refused to exchange 12% of their bonds for new issues, at the beginning of 1959 they asked for payment in cash on 23% of the bonds due. The number of declarations to the Treasury by investors, making use of the clause entitling them to early repayment of bonds, is also on the increase. According to American press reports, "dealers characterize the condition of the market... as follows: the smallest sales press down prices." (27)

The intensive selling of government bonds by the public has led to a steady reduction in their prices. The price of government securities dropped by an average of 13.4% (28) between April 1958 and July 1959, long-term bonds sustaining still heavier losses. "The government bond market registered one of the deepest slumps in all of its history," wrote Fortune magazine. (29) Many financial commentators compared this slump with the fall in stock quotations during the world economic crisis of 1929-1933. (30)

Karl Marx pointed out that a sharp drop in prices of government securities, forcing the Treasury to take measures to keep them stable, reflects the instability of credit in a capitalist state. "Depreciated government securities are the surest way to destroy the 'respect' of the stock exchange too. When government credit sinks to such a point that it is forced to apply for support to the Treasury there is nothing more humiliating than to offer Treasury bonds on the market and to seek buyers for them." (31)

The present fall in government bond quotations, the biggest and most prolonged since the war, the failure of loan subscriptions and the selling of government bonds by the public, are eloquent proof that the growth of the national debt is accompanied by growing instability of American government credit.

The sharp drop in prices of government securities acquires special significance in connection with the fact that government bonds today account for a large part of the securities market and represent, in the words of American economists, "the most important cornerstone of our entire financial assets structure." (32) Large investments in government bonds by the industrial and financial corporations are advertised by bourgeois economists as a sign for the financial strength and high degree of liquidity of the American economy. The grave position of the government bond market in 1958-1959 was clear proof of the fallacy of this contention. For the losses from the fall in prices of what the bourgeois economists had regarded as "absolutely liquid" government bonds exceeded five billion dollars during the summer of 1958. (33)

The fall in government bond prices reflects, first of all, the internal process of adjustment of government credit to the rising interest rate on loan capital. This is a spasmodic process. The growth in income from government bonds affected various forms of obligations, beginning with the long-term bonds which registered the worst drop, and ending with 91-day Treasury bills. The actual yield of a number of long-term government bonds now exceeds 4-1/4%, the highest in 35 years.

In an attempt to prevent the further selling of government bonds in a strained loan capital market, the Treasury has been forced to steadily raise the rate of interest on the new bond offerings. In July 1959 short-term government bonds were offered on terms ensuring the buyer 4.5-4.75% a year (against a 2.5-3% return on similar bonds only a year earlier).

Big business organs in the US have lately begun to strongly recommend a revision of the "obsolete" legislation limiting the interest rate on long-term government bonds to 4-1/4% per annum. (34) In June 1959 President Eisenhower sent a special message to Congress on the national debt, recommending the repeal of the legislative restrictions on the interest rate paid on government bonds on the grounds that this would promote a "natural interaction of competing forces in ... the economy." This hazy formulation actually covers up a program of a further increase in the tribute, running into billions of dollars, paid out to the financial magnates from the government budget in the form of interest on the national debt.

Raising the interest rate on government bonds will only intensify the contradictions in the American financial and credit system. It leads to a further weakening of earlier bond issues. One of the dangers to the Treasury from the rise in interest rates on government bonds is the threat of heavy selling of savings bonds. For even if they are held for 9-10 years, i.e., until they are due for payment, they will bring only 3-1/4% interest on the average, while the rate of interest on government bonds with a shorter term of payment had risen at the beginning of 1959 to 4.25-4.5%. Besides, in view of the growing danger of inflation the investor naturally wonders if the money he will receive 10 years from now for his savings bonds will not be worth less than what he pays for them at present. It must be remembered that owing to the depreciation of the dollar between 1939 and 1958 the purchasing power of the money invested in savings bonds decreased by 27.4 billion dollars. (35)

The rise of the interest rate on bonds issued by the government, one of the biggest borrowers of money on the loan capital market, causes a rise in interest rates on private loans by which corporation investments are financed.

The growing interest payments on the national debt absorb an ever larger part of budgetary expenditures. This is reflected in the fact that the cost of meeting the national debt since the war has been growing faster than the national debt itself.

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US Federal Budget Expenditures on National Debt Interest Payments*
(billion dollars)

Fiscal years	1946	1948	1950	1954	1956	1958	1960
Expenditures	4.7	5.2	5.7	6.4	6.8	7.6	8.0

* Compiled on the basis of data from Facts and Figures on Government Finance, Ninth Edition, 1956-1957, New York, 1958, p. 188; The Budget of the United States Government for the Fiscal Year Ending June 30, 1960, Washington, 1959, p. 1014. The figure for 1960 stands for budgetary appropriations.

Any further rise in the interest rate on the growing national debt, when the cost of government credit already exceeds by 50% the entire US federal revenue prior to World War II, cannot but aggravate the difficulties of the American government.

The following fact must also be taken into account. In view of the large share of short-term obligations in the structure of the US national debt, the Treasury, as already pointed out, has been forced from time to time and ever more frequently to apply for loans on the money market. However, with a rising rate of interest this means a sharp increase in interest payments from the budget not only on bonds issued to cover the current deficit, but also on government bonds issued to refund old obligations falling due.

During the 1929-1933 crisis and the depression following it, a surplus of loan capital accompanied by comparatively greater stability of government credit enabled the US Treasury to engage in conversion operations reducing the interest payments on the national debt. At the present time American finances, in this respect, are in a much less favorable condition: as a result of the 1957-1958 depression, interest payments on the national debt have had to be increased rather than decreased.

The growing national debt payments add to the burden of the American taxpayer. Disclosing the interdependence between the growth of government loans and the growth of taxes, Karl Marx showed that any capitalist government obtains the means to pay for the national debt by squeezing taxes out of the working people. "The people are well aware, through their own pockets, of how great is the burden of taxes caused by the national debt..." (36)

Payment of interest on the US national debt will cost the American population in 1959-1960 more than 45 dollars per capita in additional taxes. Total per capita taxation, which amounted to about 100 dollars before the war, grew to 368 dollars in 1946, 545 dollars in 1955 and 635 dollars in 1959. (37) However, the average figures for the growth of the tax burden cover up the plunder of the American working people by the bourgeois state. Heavy increases in tax revenue are envisaged for the 1959-1960 fiscal year both by the federal and state budgets. Not content with the present level of tax robbery of the working people, however, US monopoly capital has lately launched a new press campaign for tax reductions to "energetic and ambitious" (!) business. "The burden of taxation ... should certainly be spread over the mass of the population," cynically declares an organ of the American monopolies. (38)

Lastly, it must be noted that the growth of the US national debt as a whole has an inflationary character. The government bonds sold by most investors, like the new

bonds issued by the Treasury, were bought up mainly by the Federal Reserve System and the commercial banks. The value of government bonds held in the US banking system increased from 89.1 billion dollars on June 6, 1957 to 99.1 billion dollars on February 25, 1959, i.e., by 10 billion dollars. Out of this sum more than two billion dollars fell to the share of the bonds distributed among the Federal Reserve Banks. (39) The extensive selling of government bonds by many investors in recent years has inevitably resulted in the tendency for the share of the banks among the holders of government securities to increase. (40)

The acquisition of government securities by the central and commercial banks was effected, on the whole, by the issue of additional notes, which further stimulated the inflationary processes in the American economy. An increase in the total value of notes in circulation has been promoted, also, by the fact that the growth in the volume of government bonds took place, as already stated, in the form of comparatively more liquid — short-term — obligations, a certain part of which may be used directly as substitutes for money.

On the other hand, the very threat of a rapidly developing inflation restrains many investors from buying government securities with a fixed rate of interest, particularly long-term bonds, and this interferes with the consolidation of the national debt. The mounting sum of short-term obligations and the deterioration of the structure of the national debt are undoubtedly connected with the depreciation of the dollar since the war.

Bourgeois economists write a great deal about the possibility of "preventing inflation" by means of the credit restriction policy pursued by the Federal Reserve System. However, in view of the need to distribute an enormous amount of government securities, the Federal Reserve cannot consistently enforce its credit restriction measures for a considerable period of time without provoking a fresh wave of selling government bonds by the commercial banks and industrial corporations in need of cash. Bond depreciation will also continue to grow to the extent to which the central banks' policy of credit restrictions will cause the interest rate on loan capital to mount. The huge banking investments in government bonds, far from acting as instruments of "regulation" of monetary circulation, as the representatives of bourgeois economic science — Lerner, Robinson, Wallich, Leland, etc. — affirm, only intensify the inner contradictions inherent in the Federal Reserve credit policy and strengthen the anarchic development of inflationary processes. "All the evidence shows," writes Fortune, "that in the event of a new threat of inflation it will be much more difficult to control it by credit policy." (41)

For American labor, for all working people in the US, the development of inflationary processes causing the depreciation of the dollar can mean nothing but a higher cost of living, lower real incomes and a further deterioration in living standards.

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President Eisenhower's latest Budget Message to Congress envisages a balanced budget for the 1959-1960 fiscal year. However, financial experts are already pointing out that the message contains both a considerable exaggeration of probable revenues and an underestimation of future budgetary expenditures, of which no less than 77% are assigned to military needs. (42) According to the preliminary estimates of some financial observers, the US budget deficit in 1959-1960 may reach four billion dollars. (43) US ruling circles themselves accept a further growth in the national debt as an inevitability. On the one hand, they loudly extol the balanced nature of the 1959-1960 budget. But on the other hand, the American President in special message to Congress prudently recommended a rise in the limit of the permanent national debt by three billion dollars above the sum reached at the end of 1958-1959. Thus, the coming fiscal year will in all probability be marked by a further growth in the national debt, which, with the weakening of the government securities market, cannot inspire the Treasury with particular optimism.

The growing instability of government credit and the serious weakening on the money market of the government securities, (44) which used to be regarded as the safest sphere of capital investment, bear witness that the financing of the arms race conducted by the US and the program of state-monopoly "anti-depression" measures inevitably involve a further aggravation of the contradictions of the capitalist economy.

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(2) Holders of series E savings bonds may present them for payment after two months, and of series H and G after six months of issue. Among the other government bonds, some are liable to repayment at any time after their issue, others after a year. Hence, with the exception of a small portion of the new bonds issued during the last several months, holders of government bonds may in the event of financial stress present for payment a vast amount of non-marketable and special government bonds which have accumulated in their hands.

(3) Hearings before the Committee on Finance, United States Senate, Eighty-Fifth Congress, First Session, Part 2, Washington, 1957, pp. 924-926.

(4) Annual Report of the Secretary of the Treasury on the State of the Finances for the Fiscal Year Ended June 30, 1957, Washington, 1958, p. 413.

(5) See The Banker, April 1959, p. 244.

(6) See, for instance, First National City Bank, Monthly Letter: Business and Economic Conditions, August 1958, p. 89.

(7) Annual Report of the Secretary of the Treasury on the State of the Finances ..., 1958, p. 510.

(8) Treasury Bulletin, August 1958, p. 8.

(9) The E and H series constitute the bulk of savings bonds in the US. They are issued in comparatively small denominations and on terms accessible to small investors.

(10) Treasury Bulletin, August 1958, p. 41. Interest on savings bonds is not included here.

(11) US News and World Report, 15, VI, 1959, p. 39.

(12) See The Bankers' Magazine, March 1959, pp. 213-214.

(13) Federal Reserve Bulletin, August 1958, p. 960; ibid. January 1959, p. 48.

(14) K. Marx, Capital, Vol. II, p. 316 (Russian edition).

(15) The Wall Street Journal, March 26, 1958. [Editor's note: This and other citations from US sources are retranslated from the Russian.]

(16) The Nation, April 11, 1959, p. 316.

(17) K. Marx, Capital, Vol. III, p. 482 (Russian edition).

(18) The Magazine of Wall Street, August 2, 1958, p. 509.

(19) Ibid.

(20) The Federal Reserve had announced in 1951 that it would no longer support the price of government bonds.

(21) Federal Reserve Bulletin, August 1958, p. 932.

(22) Business Week, July 26, 1958, p. 23.

(23) The Wall Street Journal, August 6, 1958.

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(25) The Economist, October 4, 1958, p. 40.

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(27) Business Week, May 9, 1959, p. 24.

(28) Survey of Current Business, August 1959.

(29) Fortune, December 1958, p. 74.

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(31) See K. Marx and F. Engels, Collected Works, Vol.
, p. 332.

(32) See The Magazine of Wall Street, June 6, 1959, p.
59.

(33) Fortune, February 1959, p. 101.

(34) See The Magazine of Wall Street, December 20,
958; US News and World Report, March 9, 1959.

(35) What Will Deflation or More Inflation Mean to You,
American Institute for Economic Research, 1959, p. 70.

(36) K. Marx and F. Engels, Collected Works, Vol. 9,
. 45.

(37) The data for 1959 are preliminary; The Magazine of Wall Street, August 1, 1959, p. 538.

(38) The Magazine of Wall Street, June 6, 1959, p. 360; see also Fortune, May 1959, pp. 266, 268.

(39) Federal Reserve Bulletin, March 1959, p. 276.

(40) "It (the Treasury — R.E.) will soon find it really difficult to undertake any large-scale financing program without resorting to the aid of the banks" (Commercial and Financial Chronicle, February 26, 1959, p. 25.

(41) Fortune, August 1958, p. 30.

(42) See Economic Notes, January 1959, p. 10.

(43) US News and World Report, April 6, 1959, p. 115. The experts of one of the congressional finance committees estimate the federal budget deficit in 1959-1960 at 2.8-4.2 billion dollars. (See The Magazine of Wall Street, April 11, 1959, p. 110).

(44) Investors shy away from government bonds (Commercial and Financial Chronicle, September 4, 1958). Investors show no desire to put large sums into these (government — R.E.) bonds. Sharp stock market fluctuations on government bonds during the last few months have undermined the race for the "world's safest" securities. (US News and World Report, March 30, 1959, p. 103).

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I. V. Aleshina:

A Modern Bourgeois Textbook of Political Economy

Paul A. Samuelson, Economics, An Introductory Analysis, Third Edition, New York-Toronto-London, 1955, 753 pages.

"Introductions to economic analysis" represent a very popular form of bourgeois textbooks in political economy for the higher educational institutions of the capitalist countries. The study of an "Introduction" is the first stage through which a student must pass in mastering the "secrets" of contemporary capitalist society as treated by the bourgeois economists. Of the many such "Introductions" in recent years in the USA, the text of Professor P. Samuelson of the Massachusetts Institute of Technology has received the greatest amount of publicity. The text is popular not only at home, but abroad. It has had two printings in the Federal German Republic in German translation (1) and has been widely recommended to readers. The German Social Democrats write, in their trade union publication Gewerkschaftliche Monatshefte that "for persons unsophisticated in the science of economics, Samuelson's book is an attractively written guide to a mastery of the secrets of the modern economy, for students it is a scientific, instructive, and at the same time brilliant introduction to theory, whereas for practical businessmen and managerial personnel it is a necessary reference on the contemporary state of the science of economics." (2)

Samuelson's textbook is instructive in regard to the new methods of capitalist apologetics utilized by the contemporary bourgeois economists for ideological indoctrination of the student body. Both the methodological approach of this "Introduction" and the essence of the presentation of the questions it treats are subordinated to a single objective — that of convincing the student that "the American economy is in better shape in the 1950's than it ever was in the past" (page 734) and that the capitalist system is more stable than ever. " 'The mixed economy' has a great future before it" (page 734) — these are the words with which Samuelson ends his textbook.

Samuelson's "Introduction" may be regarded as a classic illustration of the definition of vulgar political economy as presented by Marx. In describing vulgar political economy, Marx wrote that it "pokes only into the field of the external apparent relationships and chews and re-chews again and again material that has already been treated by scientific political economy with the objective of providing for the bourgeoisie an acceptable interpretation of what one might term the crudest phenomena of economic life, and of adapting these to the way of life of the bourgeois. For the rest, it limits itself to a pedantic systematization of the hackneyed and smug concepts of bourgeois public figures in the field of production with respect to their own world as the best of all possible worlds, and proclaims these concepts to be eternal truths." (3) In our day, the bourgeois economists in addition concern themselves with belittling in every way possible the socialist economic system and seeking to denigrate the economic achievements of the countries of the world system of socialism. This aspect of the matter is present in abundance in Samuelson's "Introduction."

The method of "studying" contemporary capitalism proposed by Samuelson in characteristic of bourgeois vulgar political economy as a whole. In its methods of "study it does not advance beyond the limits of description of the superficial aspects of phenomena. The process of capitalist production as such is outside the scope of the text. The author attempts to describe the situation in such a manner that the sphere of circulation and, specifically, the mechanism of supply and demand represent the basic content of the capitalist economy (p. 367). The theory of production is declared to be a constituent part of the theory of distribution (p. 475).

Bourgeois methodology also imbues the structure of the text. As his point of departure for the investigation of capitalism, the author takes the general economic index of the national income. However, the actual process of production of the national income is not revealed as it occurs under the conditions of capitalist relationships of production. The growth and distribution of the national income, which is what the student's major attention is directed toward, are stated not in terms of the character of production, but in connection with the operation of the competitive mechanism of supply and demand and measures of government regulation.

Part I, "Basic Economic Concepts and National Income," sets forth the general "laws" of scarcity, declining productivity, and population (in its Malthusian interpretation) which constitute the basis on which bourgeois economists erect their economic analysis of society, including that of capitalism. It describes the "mixed economy" and the forms of government regulation by means of taxes and financial policy, and presents the concept of the national income. In the second portion, "Determination of National Income and its Fluctuations," the author strives to prove that the magnitude of the national income under capitalism depends upon the elemental play of the economic categories of saving and investment and of government policies which are allegedly directed toward full employment without inflation. Part III, "The Composition and Pricing of National Output," shows how supply and demand form the price of each type of commodity entering into the national income. The fourth portion is devoted to "Distribution of Income: The Pricing of the Productive Factors." The fifth part, "International Trade and Finance" is not in organic relationship with the preceding material. Finally, in the sixth and last part, "Current Economic Problems," an analysis is made of the war economy, the "theory" of economic growth is set forth and socialism is described as understood by right-wing socialists and by Marxists. The brief description of socialism ends with a dithyramb addressed to capitalism.

The theory of production as a component part of the theory of distribution is set forth in the fourth portion of the text and deals only with problems of interest to entrepreneurs. This "Introduction" states that, in the process of production, "every businessman (1) must learn how to produce each output as cheaply as possible, and (2) he must find which of all possible outputs is the most profitable one to aim at" (p. 476), i.e., the presentation of this problem, as of others, is set forth in this text from the viewpoint of

the flourishing of business, via the concepts of the entrepreneur with respect to the process of production. The bourgeois prism of business holds the student's thought, masks exploitation, conceals the actual economic relationships and the understanding of the objective laws of capitalism. The second characteristic of the method of this text is that of approaching the solution of all of the problems it poses from the viewpoint of the enterpreneur.

P. Samuelson repeatedly emphasizes that his "Introduction" is based on a "neoclassical synthesis." The concept of "neoclassical synthesis," the last word in bourgeois political economy, has become particularly fashionable among bourgeois economists at the present time. The German translator of his text, W. Hankel, describes "neoclassical synthesis" as "a new economic teaching" and deems it to be the "distinctive characteristic of the economic theory of the middle of our century." (4) The author of the text himself informs us that "in recent years 90% of American economists have stopped being 'Keynesian economists' and 'anti-Keynesian economists.' Instead they have worked toward a synthesis of whatever is valuable in older economics and in modern (to be more precise, the Keynesian — A. I.) theories of income determination. The result might be called neoclassical economics and is accepted in its broad outlines by all but about 5% of extreme left-wing and right-wing writers" (p. 212).

What is the "neoclassical synthesis"? Are we really dealing with a new school of economics, as its advocates assert? In the preface to his textbook, Samuelson suggests the following definition of what he calls "the grand neoclassical synthesis." "This is a synthesis (1) of the valid core of modern income determination with (2) the classical economic principles" (p. VI). The analysis of national income set forth in the textbook is in accordance with the theory of Keynes in all its fundamentals. The author says frankly, that "much of this analysis is due to an English economist, J. M. Keynes. Today its broad fundamentals are increasingly accepted by economists of all schools of thought, including, it is important to notice, many who do not share Keynes' particular policy views and who differ on technical details of analysis" (p. 211). Thus, the major constituent of the neoclassical system is essentially the theory of Keynes.

The question arises as to why it was necessary for bourgeois economists and, in particular, Samuelson to make a synthesis of the Keynesian theory which was so loudly applauded both when it first made its appearance and in the post-war years. What does combining Keynesian theory with "the classical economic principles" mean? Samuelson does not decode his concept of "classical principles." He is talking about the predecessors of modern bourgeois political economy in the realm of ideas. In essence, the author is compelled to name the economists upon whose theories modern bourgeois political economy rests. Samuelson lists the economists from whose theories, as he puts it, "modern economics comes" (p. 11). His textbook names Adam Smith, David Ricardo, John Stuart Mill, Karl Marx, and finally J. M. Keynes. Is it true, perhaps, that the theories of the great representatives of classical bourgeois political economy, and of Marx, have something in common with what is set forth in this textbook? Not at all. The names of Smith, Ricardo and Marx are subsequently mentioned only in places where the labor theory of value, which has first been presented in a distorted interpretation, is criticized and denigrated. However, the author frequently refers to and cites A. Marshall and Bohm-Bawerk. To judge by this textbook, the "theory" of long-run and short-run prices advanced by A. Marshall and the "theory" of marginal utility of the Austrian school incorporate the major principles of "classical political economy." This is yet another demonstration that what a bourgeois economist says differs from what he desires to say. It is not Adam Smith or David Ricardo, but the old dogmas of the vulgar economists of the nineteenth and beginning of the twentieth centuries that constitute the ideological sources of modern bourgeois political economy.

Samuelson's textbook, which has been erected on the basis of a synthesis of the dogmas of vulgar bourgeois political economy of the nineteenth and the early twentieth centuries, and of Keynesian theory, clearly reflects the modern tendency in bourgeois political economy. This consists of seeking new forms of apologetics for capitalism, and these are represented by bourgeois economists as the development of the science of economics. On the one hand, they strive to "revive" the old vulgar theories which in Samuelson's view were somewhat hastily criticized by Keynes. In his "General Theory," Keynes wrote that his critique is "directed against the inadequacy of the theoretical foundations of the laissez-faire doctrine." (5) The author shows that the Keynesian theory does not deny the fundamental dogmas of bourgeois political economy with respect to the laws of the competitive mechanism of capitalism. On the other hand, he strives to render Keynes more precise, to make his teachings more "realistic," to supplement "macroeconomics" with "microeconomics." Keynes' major dogma to the effect that government is capable of successfully regulating the economic life of a country acquires a somewhat different articulation in the neoclassical synthesis, although the essence remains the same: "Successful regulation is possible on the basis of the careful study of the laws of the capitalist competitive mechanism." To regulate, as this is understood by the representatives of the "neoclassical synthesis," means to even out the violations of "the economic equilibrium" of the competitive mechanism. Samuelson's "Introduction," written in the spirit of the "neoclassical synthesis," illustrates the contemporary methods of apologetics for state monopoly capitalism.

Let us turn to the essence of the presentation of certain questions to which the author attracts the attention of a student. There is no definition of the purpose of political economy in his textbook. We see on the first page that it "concentrates on the big and vital problems — which turn out to be also the interesting problems: inflation and depression, family income and national income, prices, wages, and profits; and most important of all, conditions leading to rapid economic progress and security, and to efficient use of all our resources" (p. V).

The problem of individual and family income is posed for the first time in this textbook in the form of a sharp polemic with Marx, who discovered the law of impoverishment. The author, paraphrasing a familiar proverb, says that in the United States it is not "clothes, but income, that makes the man" and that one of the objects of the science of economics is to facilitate the improvement of the living standard of the people. What are the laws that determine the distribution of income in the United States, in accordance with the analysis in this textbook? The bourgeois professor affects an air of learning to proclaim to his student a banal truth familiar to everyone even without the text: For whom things are produced is determined by supply and demand in the markets for productive services: by wage rates, land rents, interest, and profits" (p. 37). Only in parenthesis do we find the observation that, "of course, the character of the resulting distribution of income is highly dependent upon the initial distribution of property ownership" (p. 37). However, the laws of distribution are not

developed from property relationships. We find merely a description of the picture of the competitive mechanism in which the flow of commodities is directed into the hands of those who possess the dollars. Under the circumstances, "a rich man's dog may receive the milk that a poor child needs to avoid rickets." "Why?" asks the author. "Because supply and demand are working badly? No. Because they are doing what they are designed to do — putting goods in the hands of those who can pay the most, who have the most money votes" (p. 37). The author cites the fact that the problems posed in the example cited above are under constant discussion in the Congress of the United States. "Should income be completely determined by a competitive struggle — this is an ethical question which goes beyond the mechanics of economics" (p. 38). The student might find himself thinking that government regulation may perhaps make it possible to eliminate the "defects" of the economic mechanism. But the essence of the "neoclassical synthesis" lies in directing governmental regulation toward equalizing deviations from the "economic equilibrium" of the competitive mechanism relating to inflation, unemployment, crises, etc. With respect to government policy in regard to the incomes of a population, it has to be wholly and entirely subordinated to the objectives of maintaining the "economic equilibrium." This is not a policy that pursues the objective of increasing the living standards of the working people, but a policy of patching up the automatic mechanism of competition and of stabilizing the economic competition regardless of the means by which this objective is attained.

The textbook cites no concrete measures taken by the government to increase the incomes of the workers. With respect to the measures constituting so-called governmental aid to the farmers, one can respond to them only with profound irony, inasmuch as they are based on reduction in the production of agricultural products, increases in the prices of these products, etc. Moreover, the wages of agricultural workers in 1954, a most favorable year for the American economy, did not average more than $150 per month (plus housing) (p. 358).

The textbook demonstrates that the objective of maintaining the "economic equilibrium" of the competitive mechanism necessarily keeps all the demands of the working class, and specifically those of the trade unions, which are directed toward raising wages, within strict bounds. In the chapter on "Competitive Wages and Collective Bargaining" the author, putting the blame on the trade unions, says that "we must emphasize that a stable and progressive economic system requires all parties to use self-control in exercising their political powers" (p. 549). In this same chapter there is a paragraph under the heading "Pitfalls in the Concept of a General Demand for Labor," in which he poses the question of the possible consequences of a change in the general wage level. The author closes this paragraph with the following words: "Some have claimed that higher money wages provided an important key to full employment. The AFL has made similar pronouncements. On the other hand, for a century wage cuts have been extolled as a panacea for depressions. Both views may be wrong; the truth is that economic theory provides no conclusive answer" (p. 554). Thus, Samuelson registers the helplessness of capitalist political economy to solve problems pertaining to wages, although the textbook proclaimed with much fanfare at the outset that the raising of the living standard of the working people is an objective of economic theory.

The lack of scientific prerequisites for an investigation made it impossible to achieve any other result. The solution of the problem has to begin with the proposition stated parenthetically in the textbook: he who possesses private property is the one who receives a high income. Within the framework of a social order based on private property the problem of impoverishment cannot be resolved. The figures presented by Samuelson do no more than confirm this unassailable truth.

The average minimum budget including "adequate diet, occasional vacation and amusement, some tobacco and books" (p. 57) established by bourgeois statistics for 1953, a year which the author described as "the culmination of American prosperity," was $3800-$4000. The income of 50% of all families did not reach this figure, and, moreover, 20% of all families had an income lower than $1800, 30% lower than $2500, whereas 5% of the highest income families (those having incomes of $10,000 or more) received 23% of the entire national income of the country. In this connection it must be borne in mind that these are the data of bourgeois statistics, but even they bear striking witness to the fact that the economy of the United States a hundred years after the Communist Manifesto has not been converted into a "laboristic economy" as asserted by S. Slichter, who is regarded as a specialist on labor relations in the ranks of the bourgeois economists. The author of the text under review does not undertake openly to espouse Slichter's viewpoint. He does not contend that the United States has a "laboristic economy," but, nevertheless, he does speak of the appearance of a new type of production relationship of "fruitful cooperation between labor and capital" (p. 155). A reference is made to the "National Planning Association" which propagandizes instances of "successful labor relations," i.e., situations in which no strikes occur for some years running at given enterprises. Instances of this type must, in the author's opinion, be propagandized in every possible way and it should be demonstrated "how historically hostile groups can co-exist on a basis of reasonable equality of position in the enterprise, and at the same time be participants in a common endeavor from which both seek security, opportunity, and sustenance"(p. 155). Helpless in the solution of theoretical problems, the bourgeois economists become quite frank in the apologetic conclusions they draw.

Let us take the important group of problems related to the reproduction of social capital. In essence, bourgeois political economy here bangs its head against the insoluble problem of seeking methods of compensating for the inadequate purchasing power of the masses of working people without increasing the working people's share in the national income. The problem of reproduction is examined only from the viewpoint of circulation. In the course of the presentation in this textbook we find that modern bourgeois political economy is not capable, in its investigation of problems of reproduction, of even distinguishing between capital and income.

The circulation of social capital in the process of reproduction is depicted by this textbook as an exchange between business and society. But what is "business" and what is "society" in the understanding of a bourgeois economist? By "society" is meant the totality of the possessors of "the three factors" of production: capital, labor, and land. The combination of these factors constitutes business. As a result of the process of production, the possessors of these "factors" acquire incomes whose sum is equal to the national income, and business disposes of the sum of commodities.

The bourgeois economist strives to solve the problem of realization without passing outside of the bounds of value terms and limiting himself only to the scale of the national income. What results are obtained thereby? In the first

place, by limiting itself solely to the value form of the national income, bourgeois political economy ultimately buries the question of the realization of the means of production. It is no accident that all the examples presented by the author have to do with the realization of consumer goods. In the second place, limiting itself to the value form leads to the traditional error of all bourgeois political economy starting with Adam Smith, that of confusing capital and income. In the textbook there is an attempt to distinguish between capital and income within the framework of the national income. The author makes an attempt to sub-divide income in physical terms into objects of personal consumption and "net private investments." Suddenly however, we are confronted with a third category — government purchases — which destroys the consistency of the effort to distinguish between capital and income.

V. I. Lenin once wrote that "the process of production and circulation of the total social capital cannot be understood if that portion of the gross product capable of serving only as capital and incapable ever of taking the form of income is not separately identified." (6) Thus, modern bourgeois political economy is affected by the dogma of Adam Smith. Recoiling from the false theory of the "three factors" of production, the bourgeois economists attempt to present the total social capital as the sum of the incomes of three "agents" of production, and ultimately come to the conclusion that "one man's outgo is another man's income" (p. 237).

Bourgeois political economy criticizes the Marxists for having forgotten use-value. To make good this "omission" it introduces the concept of "utility." However, it is this very disregard of use value which the Marxists are accused of that is itself characteristic of vulgar bourgeois political economy, and this has stemmed from its class approach to the analysis of capitalism from the point of view of the bourgeois. The capitalist has never been interested in value in its concrete form as use value. The capitalist is interested in value only as the embodiment of surplus value. This is why contemporary bourgeois political economy takes its stand upon this approach. However, this is an improper foundation for the analysis of reproduction. Therefore, it is not only incapable of analyzing capital in physical terms, but because of its false theory of value, is also incapable of analyzing capital in value terms. As a result, the problem of the mutual replacement of the shares of the total product, or in other words, the problem of realization, without which a complete and correct understanding of the course of social reproduction is impossible, is excluded from the purview of this textbook and a value scheme that confuses the question is substituted instead.

The textbook gives an exceptionally large amount of space to problems of accumulation. However, the problem of accumulation is posed only in a quantitative fashion and in terms of the accepted outlook of bourgeois political economy with respect to the law of the relationship between saving and investment. The scale of accumulation, as Marx established, depends upon the degree of exploitation of the worker, the amount of his wages, the level of labor productivity, the volume of the capital advanced, its organic composition, etc. Samuelson, like Keynes, assumes that investment determines the level of the national income, and this in turn affects the volume of savings, while the level of savings determines the scale of investment. If the working class should succeed in saving (how it is supposed to do so under this distribution of income remains a question) it will have no one but itself to blame, as this reduces the scale of possible investment and consequently the level of the national income. The issue is presented in such a light that the worker's inadequate consumption can be compensated for by investment, and that the rational regulation of circulation by government is all that is needed to assure successful accumulation, avoidance of crises and unemployment. All that one has to find is the proper ratio between saving and consumption. Moreover, the entire problem is examined from the viewpoint of the capitalist, that of assuring him maximum profit. The statement of the problem is again limited to an examination of national income in value terms.

Is it possible to solve the problem of accumulation when it is posed abstractly, distinct from the real components of the contemplated investments? Investment is additional constant capital, additional labor power, consumer goods for the additional workers, i.e., all the conditions necessary for accumulation. In Capital, Marx wrote that "the use to which the total annual product may be put thus depends upon the composition of the latter, and not at all upon its circulation." (7) A scientific theoretical solution of the problem makes it necessary to examine the total product from the viewpoint of its real content and to separate it into two departments. The Marxist posing of the question demonstrates that bourgeois efforts to find methods of compensating for the lack of consumption by the people through a game of saving and investment is doomed to failure.

In the final analysis, bourgeois political economy merely illustrates by its reasoning that accumulation and the development of technology under capitalism are at the mercy of the law of surplus value, competition, supply and demand. After all is said and done, Samuelson arrives at the idea that it is not society which determines the scale of investment in its interests, but the factors that lead to growth in business activity, thanks to the fact that they promise high profits. "The scale of investment," we read in this text, "depends upon new discoveries, new products, new population and higher production and income... Investments depends on the dynamic and relatively unpredictable elements of growth in the system, on elements outside the economic system itself: technology, politics, optimistic and pessimistic expectations, governmental tax and expenditure, legislative policies, etc" (p. 213). Without realizing it, the author, by this final conclusion, contradicts his initial assertation to the effect that society is itself capable of determining "what and how" to produce. In reality, under capitalism, no government regulations are capable of providing for the "economic equilibrium of the capitalist mechanism" i.e., of avoiding crises, unemployment and inflation. It is not accidental, but to be expected, in efforts to prove the unprovable, that bourgeois political economy constantly thrashes around in contradictions, demonstrating the complete invalidity of the solution of these problems from the viewpoint of the capitalist class. The impossibility of solving capitalist contradictions is demonstrated, as in a mirror, in the bankruptcy of contemporary bourgeois political economy.

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A. Frumkin:

The Insolvency of Bourgeois Foreign Trade Theory

(Critical Analysis of the "Theory of Comparative Costs")

Foreign trade is one of the most important forms of peaceful coexistence of states. Trade contributes to a relaxation of international tensions. In his speech at a reception devoted to the opening of an international fair in Leipzig in March 1959, Comrade N. S. Khrushchev said: "We attach great importance to the development of business relations between states, to the establishment and extension of trade on a mutually advantageous basis. We believe that development of trade, establishment of business contacts and expansion of ties between countries are of great economic significance and will make for the strengthening of world peace... Foreign trade is the sound and reliable foundation on which peaceful coexistence of states with differing social and economic systems can successfully develop. Further, economic relations tend to create the prerequisites for the strengthening of political relations between countries. Extensive development of trade plays an important part in the promotion of mutual confidence among nations, in the relaxation of international tensions." In his talk with American businessmen on September 24, 1959, Comrade N. S. Khrushchev pointed out that "trade is like litmus-paper — it shows the state of relations between governments. It shows whether they want to live in peace or not."

If it is based on the principles of equality and mutual benefit, foreign trade contributes to the economic and social progress of all countries. A good illustration of this is provided by the close economic ties between the countries of the world socialist system, as well as by the trade relations between the socialist countries and many capitalist countries, both industrially developed and underdeveloped.

The countries which have recently shaken off the chains of colonial slavery, won their political independence and are now striving to achieve economic independence and develop their national economies have great hopes in foreign trade. The fruitful economic cooperation of these countries (for example, India, Indonesia, the United Arab Republic, Iraq) with the socialist states graphically shows the immense role foreign trade can play in promoting the all-round development of economically backward countries.

The imperialist-minded bourgeois elements are doing everything in their power to prevent the development of normal economic relations based on the principles of mutual benefit and respect for national independence. All kinds of pseudo-scientific, reactionary foreign trade theories disseminated by bourgeois economists serve as a theoretical basis for the Western discriminatory foreign trade policy towards the socialist countries. Particularly widespread in the West is the "theory of comparative costs." According to this theory, the international division of labor and foreign trade arise and develop as a result of the differing levels of production costs in various countries. These differences in production costs, it is alleged, also determine the structure and direction of the foreign trade of each individual country.

According to the "theory of comparative costs," the import of one or another type of product can be advantageous and fruitful in three cases: first, if a given commodity can not be produced in the home country owing to unfavorable natural conditions; second, if the manufacture of a given commodity abroad involves absolutely lower production costs; third, if the manufacture of a given commodity abroad involves comparatively lower production costs than inside the country.

Among the most prominent foreign trade theoreticians in the capitalist countries are the Swedish economists, E. Heckscher and particularly B. Ohlin, who applied to the analysis of foreign trade the "general equilibrium theory," which is a further elaboration of the vulgar, pseudo-scientific theory of value — the theory of supply and demand. (1) The present-day followers of Heckscher and Ohlin maintain that their chief contribution lies in the fact that they reconciled foreign trade theory with the theory of value now prevailing in bourgeois political economy.

Most of the bourgeois economists approach the problem of the international division of labor and world trade from the viewpoint of the pseudo-scientific principles of the "theory of productive factors." "The essence of the world economy is characterized by the fact," Forstmann stresses "that individual productive factors are distributed differently in the various national economies." (2) In the opinion of Mr. Ellsworth, "international differences in the prices of the productive factors, traceable to differences in their relative supplies, furnish the major element of an explanation of international specialization." (3)

Relying on the theory of productive factors, bourgeois ideologists build up an idyllic picture of capitalist international trade. If, for instance, a certain country has an abundance of labor power but is short of capital, it exports commodities requiring great labor expenditure (coffee, sugar, rubber) and imports goods requiring heavy capital investments (textile goods). If another country has much land but little labor power, it exports agricultural products requiring much land (grain, wool), and imports goods whose manufacture involves high labor expenditures. In this artificial scheme, capitalist foreign trade is depicted as a harmonious blending of the diverse opportunities possessed by various countries. "A country," Ellsworth writes, "tends to specialize in those commodities whose production requires relatively large amounts of its abundant, and hence cheap, factors. It will export such goods, and import those whose technical production requirements best fit the factor supplies and prices of other countries." (4)

It cannot be denied, of course, that differing natural conditions exert a definite influence on the international division of labor and the pattern of foreign trade of the capitalist countries. Coffee or rubber, for example, cannot be grown in a temperate or northern zone. However, the extent and character of utilization of natural resources as

well as of the labor force wholly depend on the social mode of production. It is no secret that capitalism hinders the realization of the favorable natural potentialities existing in many countries.

We shall cite a few examples. The Franco-British trust territory of Cameroons is equal to France in area: it is probably no less endowed with natural resources than France. It possesses rich deposits of coal, oil and natural gas. Its mineral wealth is extremely varied, including gold, tin, molybdenum, tungsten, copper, manganese, uranium, iron, bauxite, etc. Thus, it has a number of "productive factors" essential to modern industry. But for all that, Cameroons, like dozens of other colonial and dependent states, remains a backward agricultural country. Osendi Afana, Cameroons' representative in the Permanent Secretariat of the Afro-Asian Solidarity Committee, remarked some time ago: "The Cameroons' foreign trade is fully controlled by Britain and France and is conducted only to their own advantage and to the detriment of our national interests, as well as to the interests of other countries which could do business with us." (5) In the economy of Indonesia, which is situated on numerous islands, an important role is played by such a factor as the sea, notably in marine shipping. Nevertheless, there is not a single large or even medium-size shipyard. This is not to be attributed to "economic expediency," as is maintained by bourgeois economists, but to the fact that the American, British and Dutch foreign monopolies which ruled Indonesia did everything to prevent the country's industrial development.

The further elaboration of the "theory of comparative costs" in the works of contemporary bourgeois economists is carried on in the following directions: (6)

(a) wages, money and foreign exchange rates are regarded as factors determining changes in the volume of foreign trade conducted by one or another countries;

(b) instead of only comparing the costs of two commodities, several commodities produced in several countries are compared;

(c) transport charges are taken as one of the basic factors determining the development of foreign trade;

(d) attempts are made to take into account possible changes in the cost of producing a particular type of goods as a result of the growing volume of output;

(e) the thesis is advanced that the development of foreign trade is determined by price limits within which the exchange remains advantageous to the trading partners.

Forstmann and a number of other writers attempt to establish a connection between the foreign exchange rate and the level of wages. To ensure normal development of foreign trade, they assert, it is necessary that changes in the foreign exchange rate be accompanied by a similar change in wages, and vice versa. "From the economic-political standpoint," writes Forstmann, "it follows that in the dynamic process stable wages and stable foreign exchange rates are incompatible." (7) Concealed behind this thesis is an extremely important political point: bourgeois economists justify wage cuts by referring to foreign trade interests, to the need for maintaining the stability of foreign exchange, etc. In their efforts to find arguments in support of the monopolies' anti-labor policy of "freezing" or reducing wages, the bourgeois economists of the USA, Britain and other capitalist countries often affirm that higher wages will inevitably lead to higher prices of export goods and diminish the country's competitive position on the world market. In doing so they pass by in silence the irrefutable fact that any change in wages exerts a direct influence only on the relationship between wages and profits, but does not directly affect prices, let alone world prices, which are based on the international value of goods.

The international division of labor and international trade, according to the "theory of comparative costs," are a passive result of differences in the levels of production costs, whereas in reality the different levels of development of the productive forces (and hence, the different levels of production costs) are to a considerable extent the result of the international division of labor and the foreign trade that is based on it.

The following question arises in this connection: Why, for example, do the colonial and dependent countries figure on the world market primarily as exporters of raw materials and foodstuffs, and as importers of manufactured goods? According to bourgeois foreign trade theory, this is explained by the fact that the cost of manufacturing the overwhelming majority of industrial goods in the developed capitalist countries is much lower than in the economically backward countries. The latter, it is alleged, achieve comparatively low production costs — chiefly as a result of favorable natural conditions — only in the mining of one or another type of raw material (oil, copper, tin) as well as in raising a number of agricultural crops (cacao beans, coffee, natural rubber).

Everything is topsy-turvy in this bourgeois conception. The comparative level of production costs, regarded by bourgeois economists as the primary and determining factor, is actually determined by the peculiarities of the international division of labor in the capitalist world, under which industrial production is concentrated in a few developed countries, while dozens of colonial and dependent countries are converted into their agrarian and raw-material appendages. Developing on the basis of this peculiar international division of labor, capitalist foreign trade leads to a further growth of differences in the levels of production costs. By flooding the markets of underdeveloped countries with manufactured consumer goods, the imperialist powers obstruct the development of local industry, the growth of large-scale enterprises, and hence, the lowering of production costs. A vivid illustration is furnished by the unequal trade agreement imposed on Cuba by the United States, which led to the stifling of national industrial output as a result of the competition of goods imported from the USA. At the present time the revolutionary government of Cuba is determined to revise this agreement.

The advocates of the bourgeois "theory of comparative costs" affirm that it is unprofitable for the economically backward countries to create their own industry, particularly heavy industry. There is no sense in wasting resources on the construction of industrial enterprises in the underdeveloped countries, they declare, when the required goods may be purchased at a lower price from the capitalist countries which already have a powerful industry.

Such assertions are really paradoxical: it turns out that it is "economically profitable" (from the point of view of economizing on costs) for the underdeveloped countries to preserve the backward and one-sided character of their economy, and on the contrary, it is "economically unprofitable" to strive for all-round development of their productive forces. It stands to reason that industrialization of the economically backward countries involves the expenditure of great material and financial resources and therefore entails serious difficulties, as is vividly illustrated by the present-day experience of India and other countries. However, this is the only path along which the underdeveloped countries can achieve genuine economic independence and strengthen their positions in the fight against imperialism and colonialism. In determining the economic rationality of the international division of labor and trade

relations, the development of the productive forces and the growth of the country's national economy should serve as the chief criterion. It is from this standpoint, and not from the standpoint of the "theory of comparative costs," that one should appraise one or another system of international economic relations. In particular, the new, progressive international economic relations inherent in the world socialist system actively contribute to the all-round development of the productive forces of each individual socialist country, raising the level of their economic development and ensuring the general growth of labor productivity.

The apologetic essence of the bourgeois "theory of productive costs," which is insolvent at all stages of capitalist development, is revealed with particular clarity in present-day conditions. According to this "theory," there is a complete, undisturbed harmony of interests reigning in world capitalist trade. For its advocates such things as monopolies, imperialist states, colonial and dependent countries or the world socialist system are simply nonexistent.

The foreign trade theory of contemporary bourgeois economists is based on the premise that the competition prevailing on the world market brings the prices of commodities into line with their production costs in various countries. Actually, however, the monopolies maintain jacked-up prices on commodities produced in the imperialist states, despite comparatively low production costs; on the other hand, the prices of goods bought by the monopolies from the economically backward and dependent countries remain very low, although the actual production costs are comparatively high owing to poor mechanization and great expenditures of manual labor.

The apologetic character of bourgeois foreign trade theory is manifested, in particular, in denying the nonequivalent nature of the exchange which is practiced by the imperialist powers in their trade with the colonial and dependent countries. The bourgeois writers carefully avoid the fact that dozens of colonial and semi-colonial countries whose foreign trade is de facto (and in the colonies also de jure) completely controlled by foreign monopolies are deprived of the possibility of freely choosing their trading partners, being compelled to sell their goods at low prices and to pay exorbitant prices for the goods they have to import. Foreign monopoly rule brought about a situation in which many of these countries for a long time conducted trade between themselves only within very narrow limits (for instance, the Latin American countries with one another, or the Arab countries and India). Quite obviously, this state of affairs cannot be explained by economic rationality or relative production costs, as the bourgeois economists assert; it was created in the interests of definite imperialist monopolies. Only by winning political independence and taking the path of independent development could India, Indonesia and the Arab countries begin to overcome the one-sided character of their foreign trade and adjust it in a way that more fully corresponds to their national interests.

We want to say a few words about the rapacious reexport trade which is so characteristic of capitalism. It is generally known that not so long ago Indian tea and jute, Indonesian rubber and Malayan tin were sold on the world market almost exclusively by British and Dutch firms. Even today, such colonial countries as Kenya, Cameroons or the Belgian Congo have no independent access to the world market. These facts in no way conform to the "theory of comparative costs." When confronted with such facts, bourgeois economists usually declare that they are not concerned with "political factors," but only with "pure economic theory." (8) This results in the appearance of artificial models which have nothing in common with objective reality; as a matter of fact, they distort reality and gloss over the sharpest contradictions of modern capitalism.

Bourgeois economists declare that foreign trade contributes greatly to the lowering of production costs and promotes technical progress, but they carefully fail to mention that in practice the monopolies of the USA, Great Britain and other imperialist countries obstruct the development of productive forces in the underdeveloped countries and make their economies lop-sided, agrarian and raw-material in character. Not infrequently, the monopolies deliberately curtail production and impede technical progress in the industrially developed capitalist countries for the sake of maintaining high prices on the world market. A graphic illustration is provided by the practice of international cartels, notably international patent monopoly agreements.

One of the main conclusions of the "theory of comparative costs" is that owing to the expansion of foreign trade the differences in the levels of economic development between various countries are being levelled out: the underdeveloped countries are being raised to the level of the industrially developed nations. It is alleged that this process is taking place not as a result of the struggle waged by the economically backward countries for their political and economic independence, but as a consequence of the "beneficent" system of division of labor and international economic relations prevailing among the capitalist countries. In Forstmann's opinion, for example, "the levelling out of economic conditions in various countries" is effected in two ways: first, by means of foreign trade conducted in conformity with the principle of comparative costs, and second, as a result of the export of capital. (9) Johnson holds that foreign trade "tends to equalize factor prices between countries, thus serving to some extent as a substitute for mobility of the factors," (10) and this allegedly leads to the gradual elimination of differences in the economic levels of different countries.

This conclusion of the advocates of bourgeois foreign trade theory profoundly contradicts the actual state of affairs. Many facts, including those provided by bourgeois statistics, point to the contrary. The rate of economic growth in the colonial and dependent countries is considerably lower than the rate of growth of the imperialist countries (the latter rate is anything but high, especially when compared with that of the socialist countries). For example, the present gap in the levels of economic development of Kenya and Britain, French Black Africa and France, the Philippines and the USA, is much wider than, say, 30 or 50 years ago.

Only in the world socialist system do foreign trade and other forms of international relations really contribute to the levelling out of the stages of economic development of all countries. As Comrade N. S. Khrushchev pointed out in his report to the 21st CPSU Congress, "the law of balanced proportional development operates under socialism with the result that countries which were economically backward in the past are rapidly able to make up for lost time and raise their economic and cultural levels by drawing on the experience, cooperation and mutual assistance of other socialist countries. In this way the economic and cultural progress of all the socialist countries is levelled out." In the sphere of international economic relations, as in every other sphere, the socialist economic system has immeasurable advantages over the moribund capitalist system.

The real significance of comparative production costs in international trade is totally different than that suggested by bourgeois economists. The level of production costs is only one of the factors influencing the competitive struggle on the world capitalist market. Thus, owing to low production costs (resulting from miserable wages) the Japanese firms exporting cotton fabrics are penetrating British Commonwealth markets and even making inroads into England herself. The fierce competitive struggle now developing in the Common Market of the six West European countries graphically shows that considerable differences in the levels of production costs for similar types of goods exist not only (and in many cases not so much) between countries, but also between different enterprises within one country. Under capitalism different levels of production costs lead to the suppression and stifling of small and medium-size enterprises in different countries and to the concentration of production in the hands of the biggest imperialist monopolies, which are closely linked by cartel and other agreements. This is precisely the immediate prospect facing the Common Market in the countries of the so-called European Economic Community.

The "theory of comparative costs" is used by bourgeois economists not only for the purpose of defending imperialism but also for justifying one or another foreign trade policy that is advantageous to certain countries. It is interesting to note that one and the same theory is given a different interpretation in the bourgeois literature of various countries. For instance, the American writers use it as an argument in support of their demand for the "re-establishment" of so-called "free trade." They declare that "free trade," which in reality only creates a favorable situation for the economic expansion of the most powerful monopolies, provides the necessary conditions for "the most effective use of productive resources," "the best specialization of individual countries," etc. Similar views are often expounded by bourgeois economists of West Germany. References to the "theory of comparative costs" may likewise be found in the articles contributed by the apologist of the Common Market and other West European "integration" projects.

The English bourgeois economists interpret this theory in a different way. Thus, analyzing British and American export industries in the light of the "theory of comparative costs," McDougall arrives at the conclusion that in a number of cases American goods are manufactured at lower production costs than similar British goods and therefore their competitive position on the world market is better. Of course, it would be naive to expect a British writer to propose the liquidation of individual branches of industry in Britain for the sake of "the most effective utilization of resources." He demands the introduction of diverse state-monopoly measures designed to stimulate British exports, including a discriminatory policy against American goods. (11) Much the same reasoning is revealed in the works of other British bourgeois economists.

The reactionary character of contemporary bourgeois foreign trade theory is revealed most clearly when it comes to the problem of trade between the capitalist and socialist countries.

Bourgeois economists, particularly American economists, come out in defense of discriminatory government measures directed against the Soviet Union and other socialist countries. At the same time they try to give a distorted picture of the aims and potentialities of Soviet foreign trade. In conformity with the official policy of the USA and a number of West European countries, they actively support discriminatory measures against commercial and economic relations with the socialist countries. In justification of their reactionary views they trot out the hackneyed arguments of the "cold war" ideologists, advancing all kinds of political and "strategic" considerations, references to Western "security interests," etc. The same role is assigned to the contemporary bourgeois "theory of comparative costs."

One example is Forstmann, who tries to play down the potentialities of trade between the capitalist and socialist countries. Forstmann belongs to the so-called "neo-Liberal" trend in contemporary political economy which is very widespread in Western Germany and enjoys the active support of the German financial magnates. The economists of this persuasion distinguish, as they put it, between two basic and long-established types of economies which they put in opposition to each other: the "free market economy" dominated by the market and the "centrally-regulated economy" directed from one center. In their comparative analysis of both types, they extol the "free economy" of modern capitalism and condemn the "centralized economy."

Proceeding from this vulgar, pseudo-scientific conception, Forstmann asserts that the law of comparative costs, allegedly ensuring the most rational international division of labor from the economic point of view, operates only in the relations between countries with "free market economies," i.e., in the capitalist world. On these "grounds," Forstmann declares that it is difficult for the socialist countries (or "the centrally-regulated economies," as he calls them) to maintain rational economic relations with the capitalist world, since there is no possibility of comparing production costs and prices.

The bourgeois defenders of trade discrimination try to put the blame for the reduction in the volume of East-West trade on the policy of the Eastern countries, alleging that the socialist countries, notably the Soviet Union, pursue a policy of autarchy in their industrial development. Such assertions are absolutely unfounded. The Soviet Union and the other socialist countries have never refused to utilize the advantages offered by the international division of labor and the development of trade relations with the capitalist world on a basis of equality and mutual benefit. From the economic point of view, they are interested in developing foreign trade which, on the one hand, serves as an additional source of obtaining goods for a fuller satisfaction of their requirements, and on the other, enables them to offer a wide range of their own manufactured goods which are of interest to other countries. In 1957 the Soviet Union's volume of foreign trade was 6.2 times higher than in 1938. Soviet trade with the capitalist countries in 1955 amounted to 208% of the 1946 level (which was approximately the same as in 1950) and in 1957 to 339% of that level. (12)

The Soviet government's numerous statements reaffirming its readiness to expand to the maximum its trade relations with the capitalist countries on a mutually advantageous basis are known to the whole world. Another confirmation of this is provided by N. S. Khrushchev's report to the 21st CPSU Congress, as well as by the historic decisions adopted by the Congress. The Congress approved the seven-year economic development plan of the USSR, which envisages a further substantial increase in the Soviet Union's foreign trade, including trade with the capitalist countries. In the seven-year period the Soviet Union will extend its economic relations with all countries and will be able to at least double its volume of foreign trade.

During his American visit N. S. Khrushchev stressed that the USSR stands for mutually advantageous, equal trade without discrimination. "We are doing excellent business with China and other socialist countries," he declared in Washington on September 24, 1959. "We are making good

progress in our trade with India, Great Britain, France, West Germany and Italy ... Our economy does not suffer from the fact that trade is not developing between the USA and the USSR. But if there were trade, it would be better both for you and for us."

Contrary to all "theoretical" considerations advanced by Forstmann and the other bourgeois writers of his ilk, practical experience convincingly shows that if the governments of the capitalist countries do not erect artificial barriers, the difference in social systems is no hindrance to fruitful economic cooperation. A vivid example is provided by Soviet-Finnish trade, which is mutually beneficial, considerable in volume and diversified in structure. The two five-year trade agreements (1951-1955 and 1956-1960) have created a firm basis for the expansion of trade between these countries. The Soviet Union's trade with Finland in 1955 amounted to 936 million rubles, in 1956 to 1,043.9 million rubles, in 1957 to 1,262.6 million rubles. (13) Trade with the Soviet Union is of great importance to the Finnish economy: it ensures full-capacity operation for a number of industries and supplies Finland with food and fodder grains, chemical fertilizer, mineral fuel, textile raw materials, means of transport and many other goods. President U. Kekkonen has repeatedly emphasized that Finland's trade with the USSR provides employment for tens of thousands of Finnish workers, especially in the metal-working industry. In his speech at a press conference devoted to the signing of a Soviet-Finnish trade agreement in March 1959, Minister of Trade and Industry A. Karjalainen said that keeping exports at a high level is particularly important for ensuring steady employment in Finland.

A. I. Mikoyan said in his speech at the 21st CPSU Congress: "No one in the capitalist countries any longer doubts the feasibility of Soviet economic plans. This is a great achievement. But there are still leaders who try to scare businessmen with our plans. They are told that the Soviet Union will not buy anything from anyone, that trade with the USSR has no prospects and that all this allegedly follows from a policy of autarchy which they ascribe to us. This is absolutely wrong, it contradicts our policy, it contradicts the history of our foreign trade."

It should be noted that a number of bourgeois economis exhibit a sober approach to this question, advocating broader trade relations with the USSR and other socialist countries. Thus, Professor of Economics William Peterson writes that "with the exception of munitions and arma ments, the USA must pursue a policy of free trade both with Communist and non-Communist countries." He advises the abandonment of bureaucratic interference in East-West trade, having in mind "export and import licenses, control of business transactions, etc., since all this is essentially of no use."

Such statements can only be welcomed, for it is an irrefutable truth that good trade not only contributes to the extension of mutually beneficial economic ties, but also serves to promote friendly relations among nations and consequently makes for the preservation and strengthenin of world peace.

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(3) P. T. Ellsworth, The International Economy, New York, 1956, p. 124.

(4) Ibid., p. 125.

(5) Pravda, February 20, 1959.

(6) See, for instance, G. Haberler, The Theory of International Trade, London, 1950, pp. 131-132.

(7) A. Forstmann, Die Grundlagen der Aussenwirtschaftstheorie, p. 38.

(8) For example, H. G. Johnson's book, International Trade and Economic Growth (London, 1958) even has a special subtitle, Studies in Pure Theory.

(9) A. Forstmann, op. cit., p. 22.

(10) H. G. Johnson, op. cit., p. 17.

(11) The Economic Journal, September 1952, p. 510.

(12) See Vneshniaia Torgovlia, 1958, No. 11, p. 12.

(13) See Vneshniaia Torgovlia SSSR za 1957 god, Statisticheskii obzor, Vneshtorgizdat, 1958, pp. 89, 92.

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n the steel-making shop of a tractor plant and 2) an auto-natic line for manufacturing electric-motor beds at a notor manufacturing plant.

The economic effectiveness of each type of newly intro-uced equipment should, in our opinion, be presented in he following manner (see table on page 7; the table presents the economic effectiveness of the second measure cited above).

After working out and approving the methodology for determining the economic effectiveness of mechanization and automation, it will be necessary to introduce statistical accounting and reporting of the economic effectiveness of the newly introduced equipment. These accounting and reporting data should be extensively used in economically justifying plans for the introduction of new equipment.

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way of the subsidiary enterprises does not at all mean hat it is possible to artificially force this process, without he availability of the material prerequisites rendering the peration of a subsidiary plot unprofitable. Specifically, it s necessary to bear in mind that the subsidiary enter-prises of the collective farms will lose their significance nly if, simultaneous with the strengthening of the commu-al sector of the collective farms and the growth in mone-ary incomes of the collective farmers, adequate trade or he supply of products necessary to satisfy the needs of the collective-farm family is organized in the countryside.

As far as the subsidiary personal farm plots which are primarily used not for subsistence, but for commodity-producing purposes, are concerned, these will lose their significance in proportion to the flow into the channels of Soviet trade of the products of state and collective farms in a volume sufficient to satisfy the needs of the urban population.

Footnotes

(1) KPSS v Rezoliutsiyakh i Resheniiakh Syezdov, Konferentsii i Plenumov TsK KPSS, 7th edition, Part 2, p. 595.

(2) Narodnoe Khoziaistvo SSSR v 1956 Godu, Moscow, 1957, p. 116.

(3) Ibid., p. 131.

(4) Dostizheniia Sovetskoi Vlasti za 40 Let v Tsifrakh, Moscow, 1957, p. 182; SSSR v Tsifrakh, Moscow, 1958, p. 221.

(5) See Materialy Vneocherednogo XXI Syezda KPSS, Moscow, 1959, p. 7.

(6) SSSR v Tsifrakh, Statisticheskii Sbornik, Moscow, 1958, p. 199.

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(4) Samuelson, op. cit., p. V.

(5) John M. Keynes, General Theory of Employment, Interest and Money, International Literature Press, 1948 (Russian edition), p. 329.

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(7) Marx, Capital, op. cit., p. 585.